

THE MACINTOSH™ MAGAZINE
FOR THE REST OF US

THE

MAC

November 1986

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azine

**MACINTOSH
TRADE SHOW
ROUNDUP
ANAHEIM MACEXPO
BOSTON MACWORLD EXPO
SEYBOLD DESKTOP
PUBLISHING CONFERENCE**

**POSTSCRIPT
HALFTONING
FOUR LEADING
STATISTICS
PACKAGES**



NEW!

Turbo Pascal for the Mac: incredibly fast and fully integrated!

Borland's new Turbo Pascal for the Mac™ is so incredibly fast that it can compile 1,420 lines of source code in the 7.1 seconds it took you to read this sentence.

And reading the rest of this page takes about 5 minutes, which is plenty of time for Turbo Pascal for the Mac to compile at least 60,000 lines of source code!

Turbo Pascal for the Mac does both Windows and "Units"

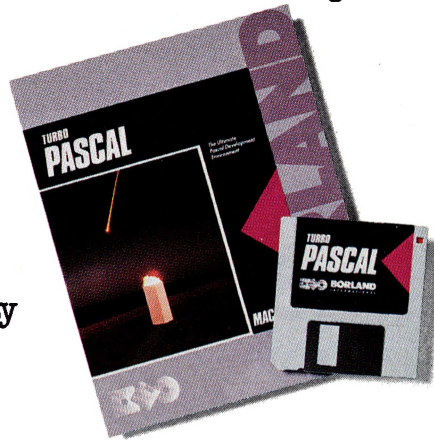
The separate compilation of routines offered by Turbo Pascal for the Mac creates modules called "Units"—which can be linked to any Turbo Pascal® program. This "modular pathway" gives you "pieces" which can then be integrated into larger programs. (You build the "pieces" once, and you know they work, so you can use them again without having to recompile.) The immediate benefits of this technique are a more efficient use of memory and a reduction in the memory space needed to run large programs. (What you need to run Turbo Pascal for the Mac is 256K minimum—or half a Fat Mac, 1 drive, and the ability to handle astonishing speed.)

“The timing of Turbo Pascal for the Mac couldn't be better. The recent success of the Macintosh in business and its continuing momentum in higher education coincide well with the introduction of Turbo Pascal for the Mac. Turbo Pascal is already an industry standard in the IBM-compatible world, and we're very excited to see Borland International's new commitment to provide this national's new commitment to provide this and other modestly priced, high-quality software for the Macintosh computer.”

John Sculley, Chairman,
Apple Computer, Inc. 99

“Turbo Pascal has become the language of choice at major educational institutions around the country, and more than 400,000 copies of the IBM PC version have been sold. We believe that Turbo Pascal for the Mac is the ideal educational and professional programming tool for the Macintosh.”

Philippe Kahn, President,
Borland International 99



Turbo Pascal for the Mac is so compatible with Lisa that they should be living together

Not just Lisa®, but also Macintosh Programmers' Workshop Pascal.™ Routines from either one can be compiled and run with only the subtlest changes. Turbo Pascal for the Mac is also compatible with the Hierarchical File System™ of the Macintosh.™ (You can define default volume and folder names for the names used in compiler directives.) Compatibility is also familiarity, and you'll feel right at home with Turbo Pascal for the Mac because it fits neatly into every aspect of the Macintosh environment. The pull-down menus are there, along with dialogue boxes to guide you in making choices and picking options.

Turbo Pascal for the Mac cranks out more than 12,000 lines a minute

Better than 12,000 lines per minute of compiled source code race out of Turbo Pascal for the Mac. There is definitely "No Waiting." And none of the "stop/start" compiling delays that afflict some of the software programs that we're not mentioning here. (They can take 10 minutes to do what Turbo Pascal for the Mac can do in 10 seconds!)

You don't spend a lot of up-front time learning to use Turbo Pascal for the Mac. It's as easy as it is fast—which is not to say that it's over-simplified or written for people who have recently learned to walk erect. Instead, it's electronic proof that sophistication and complication don't need to go hand-in-hand.

In all software, there's the Hard Way, the Wrong Way, the Weird Way, the No Way, and the Borland Way. Welcome to the Borland Way!

How to walk and chew gum!

Turbo Pascal for the Mac lets you do up to 8 different things at once. You can have up to 8 separate programs in memory, work on one, move on; work on another, move back—or duck and weave between all 8 at the same time! And you can do these 8 Easy Pieces while you run the compiler. Multiple editing windows allow you to edit, compile, and execute each window individually. With several windows open at the same time, you switch from one open window to another faster than a cat burglar—and never get caught. It's "take the source code and run!"

The 27-Second Guide to Turbo Pascal for the Mac

- Compilation speed of more than 12,000 lines per minute
- "Unit" structure lets you create programs in modular form
- Multiple editing windows—up to 8 at once
- Compilation options include compiling to disk or memory, or compile and run
- No need to switch between programs to compile or run a program
- Streamlined development and debugging
- Compatibility with Lisa Pascal™ and Macintosh Programmers' Workshop Pascal
- Compatibility with Hierarchical File System of your Mac
- Ability to define default volume and folder names used in compiler directives
- Search and change features in the editor speed up and simplify alteration of routines
- Ability to use all available Macintosh memory without limit
- "Units" included to call all the routines provided by Macintosh Toolbox



Clear your desk, SideKick's here!

SideKick® brings true desktop management and communications to your Mac. Now you can automatically dial phone numbers, log on to bulletin boards, schedule appointments, jot down notes,

calculate business expenses—and more—while running all your other Mac software. Once you get SideKick you'll wonder how you ever did without it!

See order form on right-hand page ►

Introducing Reflex for the Mac, **NEW!** Borland's remarkable new relational database

Because it is a truly relational database, Reflex for the Mac™ lets you get your various acts together. Lets you connect "A" to "B" to "C," or "Dog" to "Cat" to "Fight." Or whatever links and connections you need to make and need to see. It's a simple spreadsheet-style series of electronic and visual cross-references. There's a clear connection (which you first make by drawing it on-screen) between "Client"—"Matter"—"Attorney"—"Time Sheet"—"Expenses" and "Bill." Or between "Slow Driver in Left-Hand Lane"—"Mile-long Traffic Jam" and "Shot from Behind." It's all relational.

Designed to make the most of your Mac's visual talents, Reflex for the Mac lets you place fields and pictures wherever you want them on the page—and print them that way with your Report Generator.

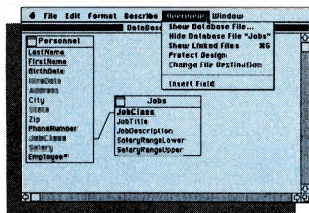
A funny way to use Reflex for the Mac

Let's say you have to make a lot of speeches and you like to tell jokes, but can't always remember the right one for the right audience at the right time. So you use Reflex for the Mac to set up multiple files

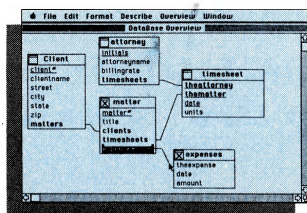
that all connect to each other.

Your "Joke" file connects to your "Audience" file, which is split into categories like "Friendly," "Hostile," "Dumb," "Student" or whatever—all of which are interconnected and relational. Reflex for the Mac lets you find the right joke for the right audience, right now.

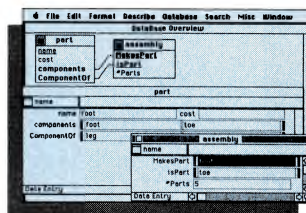
(The serious sides of business include applications like client billing, stock portfolio management, tax planning, and your checkbook.)



After opening the "Overview" window, you draw link lines between databases directly onto your Macintosh screen.



The link lines you draw establish both visual and electronic relationships between your databases.



You can have multiple windows open simultaneously to view all members of a linked set—which are interactive and truly relational.

Mac News for Kangaroos!

Heart of America, one of the U.S. 12-meter contestants in the America's Cup races in Australia, is relying on Reflex for the Mac to help Bring The Cup Up. (They're also using Borland's SideKick and Turbo Pascal.) Reflex analyzes 20 different variables like wind speed, heel angle, backstay load, trim tab angle, rudder angle and 15 other criteria to show and tell Heart of America where to be when—and what to do now to win!



You need Reflex for the Mac

Get some Reflex action out of your Mac. Call now. With Reflex for the Mac, you'll have all the right connections—for only \$99.95!

Heart of America's skipper Buddy Melges with Borland International's skipper Philippe Kahn on a testing, training, and analytical run, Santa Cruz, California

"Really uses the visual strength of the Mac to produce a database design tool
Adam Greene, InfoWorld

... a stunningly wonderful application generator/dbms

Esther Dyson, Release 1.0

Bridges the gap between the pretty programs and the power programs

Stewart Alsop, PC Letter "

YES! I want the best!

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Minimum system requirements:

Turbo Pascal for the Mac: 256K. Reflex for the Mac: 512K. SideKick for the Mac: 128K.



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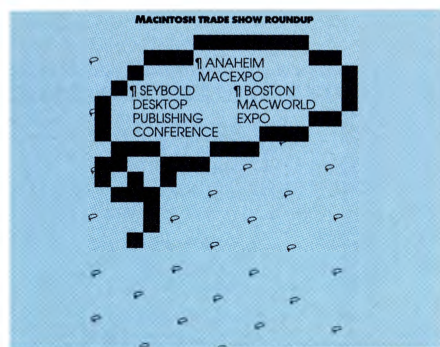
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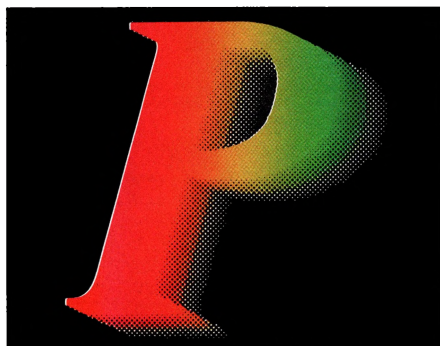
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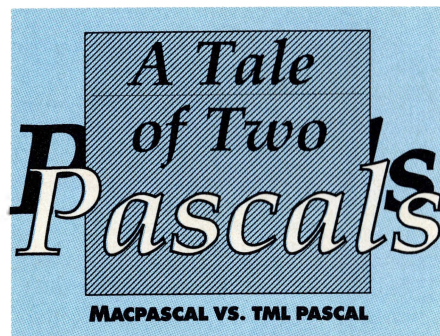
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Cover design by Michael Gosney and John Odam. Cover photography by Craig McClain, San Diego.

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THE OTHER SIDE OF SHARING

Networking your computers can be a great way to increase productivity through sharing. But the problem with sharing information comes when you try to produce something. Several people sharing a single disk or printer can mean prolonged waiting—or loss of data and work from an inadvertent system crash.

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With the LaserServe desk accessory, each user can direct documents to the network's printers and then immediately get on with their work. There's no waiting for LaserWriters (or AppleTalk Imagewriters) to become available or waiting for them to process documents. And waiting means people and hardware doing nothing!

Add MacServe and you can share information on multiple hard disks, as well as printers, with complete security. Even if a server crashes, our automatic reconnection keeps you from losing any data or print files. Your PCs can even join in with PC MacServe.

MacServe has long been the number one solution for Mac networking. LaserServe will soon be the number one solution for printing. Ask your Apple dealer for LaserServe and MacServe.

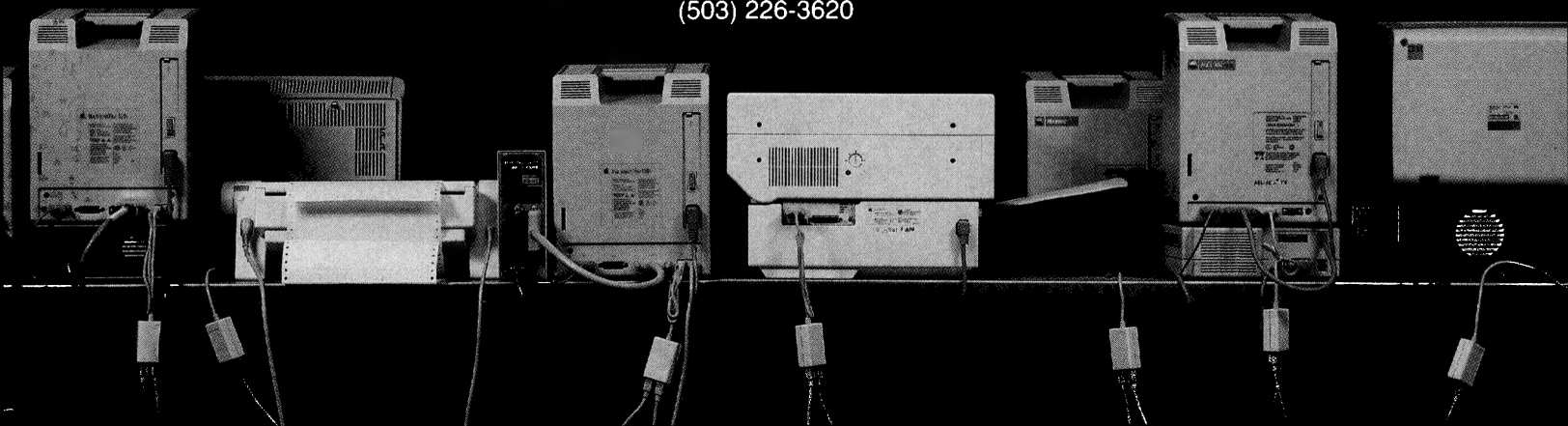
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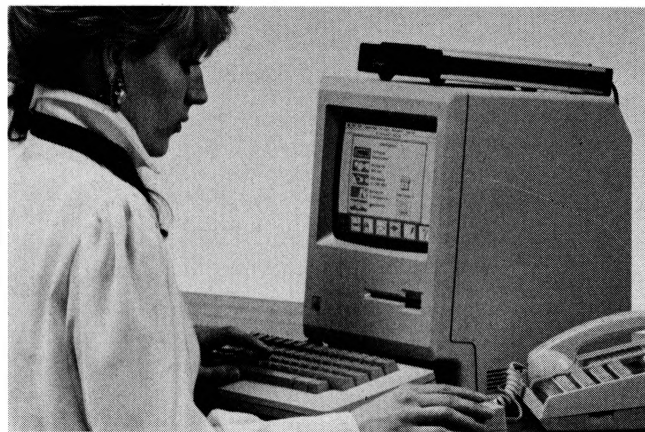
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BOB LeVITUS
EDITOR-IN-CHIEF

DO YOU WANT A COLOR MAC? DO YOU WANT IT NOW?

People ask me all the time if the Mac "does color." Then they usually ask if I think it ever will. My best guess is a qualified maybe. Though it never bothered me, it seems to bother a lot of people. If you're one of those, and the thought of a color Mac makes you shiver with anticipation, there may be a big surprise in store for you at your local Apple dealer.

The Apple IIGS is the newest and most powerful member of the Apple II family. It is definitely not a color Mac, but it does have some very Mac-like qualities. You'll feel right at home looking at the 12" hi-resolution AppleColor™ RGB monitor. Pull-down menus and dialog boxes are right where you expect them to be, but instead of patterns on the paint program palettes, there are 4,096 colors. Fifteen synthesized voices create digital sound that, heard through the optional Bose® RoomMates speakers, will knock you out of your socks. And, at about \$1,500 for the computer and monitor, it's not completely out of reach. I have to believe that a color Mac would cost significantly more. If they ever come out with one.

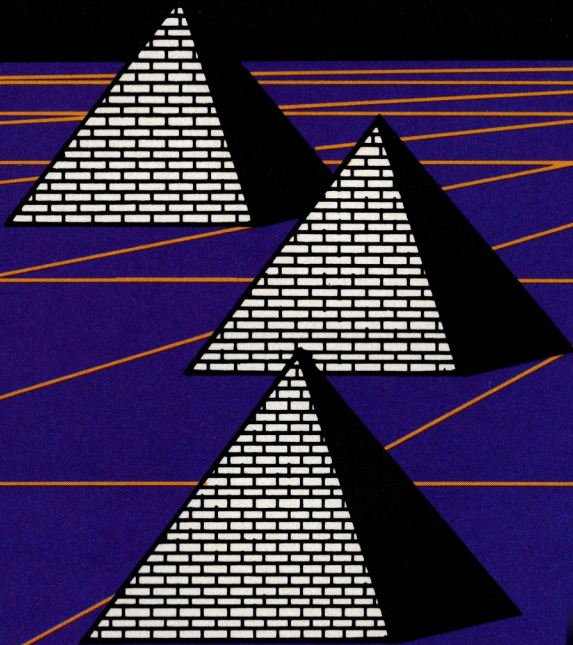
Though it won't run Macintosh software, it runs over 10,000 existing Apple II programs. New programs which address the GS's souped up graphics and sound (incidentally, that's what GS stands for—Graphics and Sound) are already available. The ones I've seen are outstanding.

Broderbund's Fantavision, a special effects/animation generator which creates studio-quality animated sequences with digitized sounds, is incredible. It uses two advanced computer animation techniques, "tweening" and "transformation." "Tweening" creates smooth, fluid motion instantly by generating up to 64 intermediate positions between objects. This saves having to redraw shapes countless times. "Transformation" lets users create sequences where an object in one frame can be transformed into an entirely new object in the following frame. This alone would be worth a trip to your dealer to see, but there's more . . . Activision's *Paintworks Plus*™ uses the familiar *MacPaint* interface to create incredible color graphics. Great Wave IIGS's product is *KidsTime*™ II, derived from the popular Macintosh *KidsTime* programs. PBI offers *Visualizer*, a graphing and spreadsheet program which allows precise control over numerous color graph-types. Lots of other nifty software is available for the IIGS, and almost any of the 10,000+ programs which run on other Apple II computers will run on the IIGS.

So, if you can't live without a color computer with great graphics and sound, take a look at the Apple IIGS. You can't help but be impressed.



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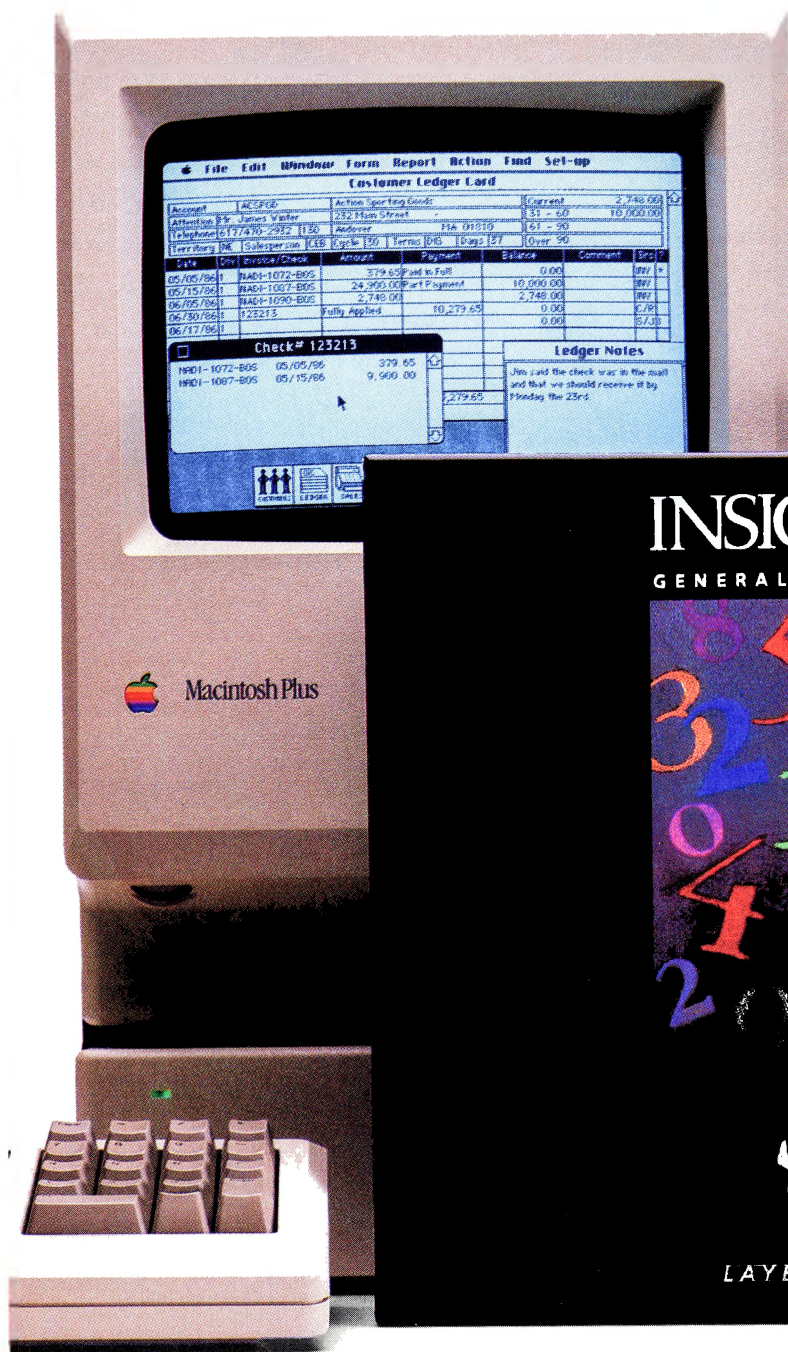
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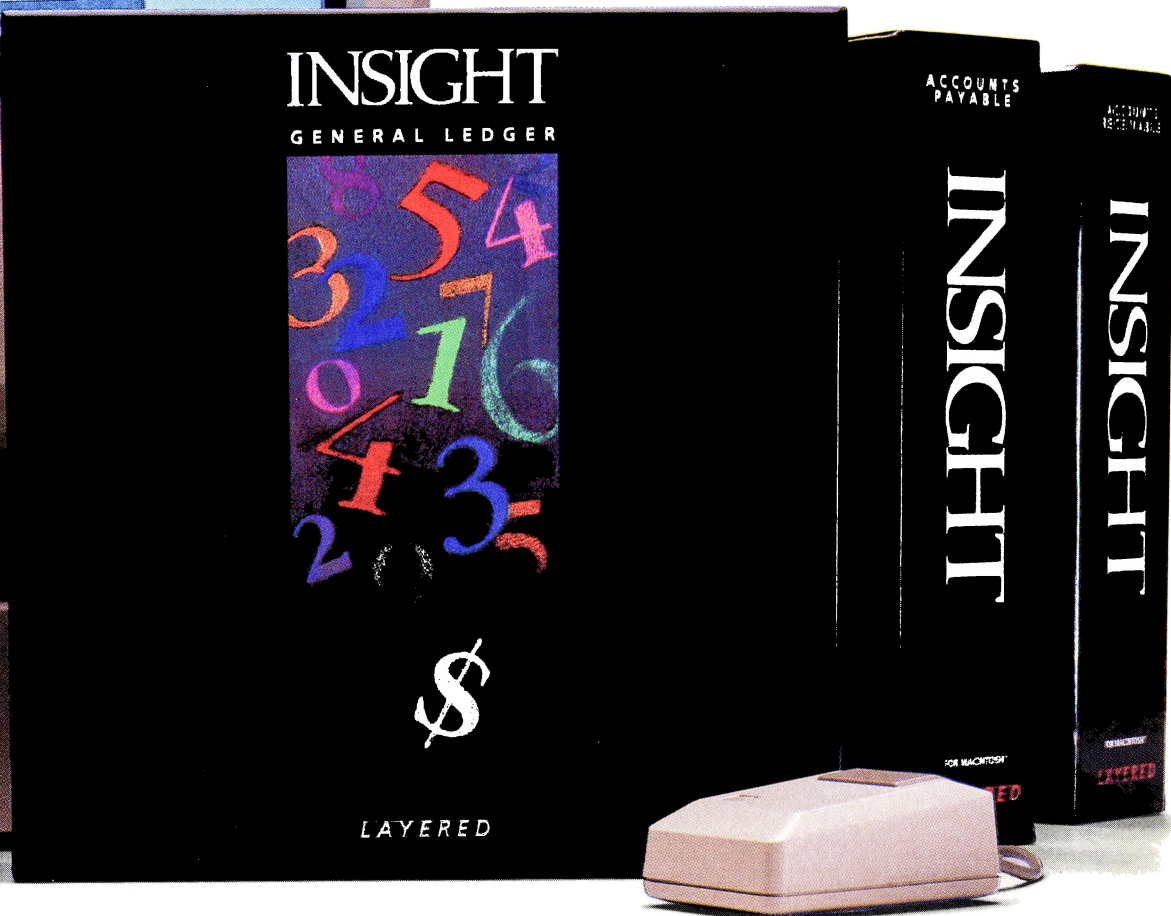
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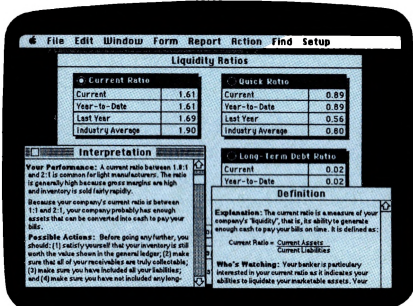
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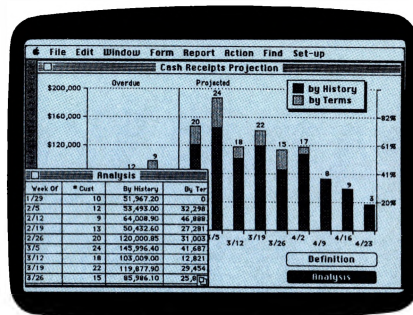
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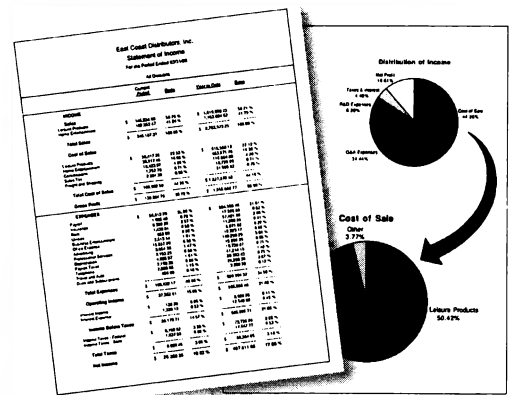
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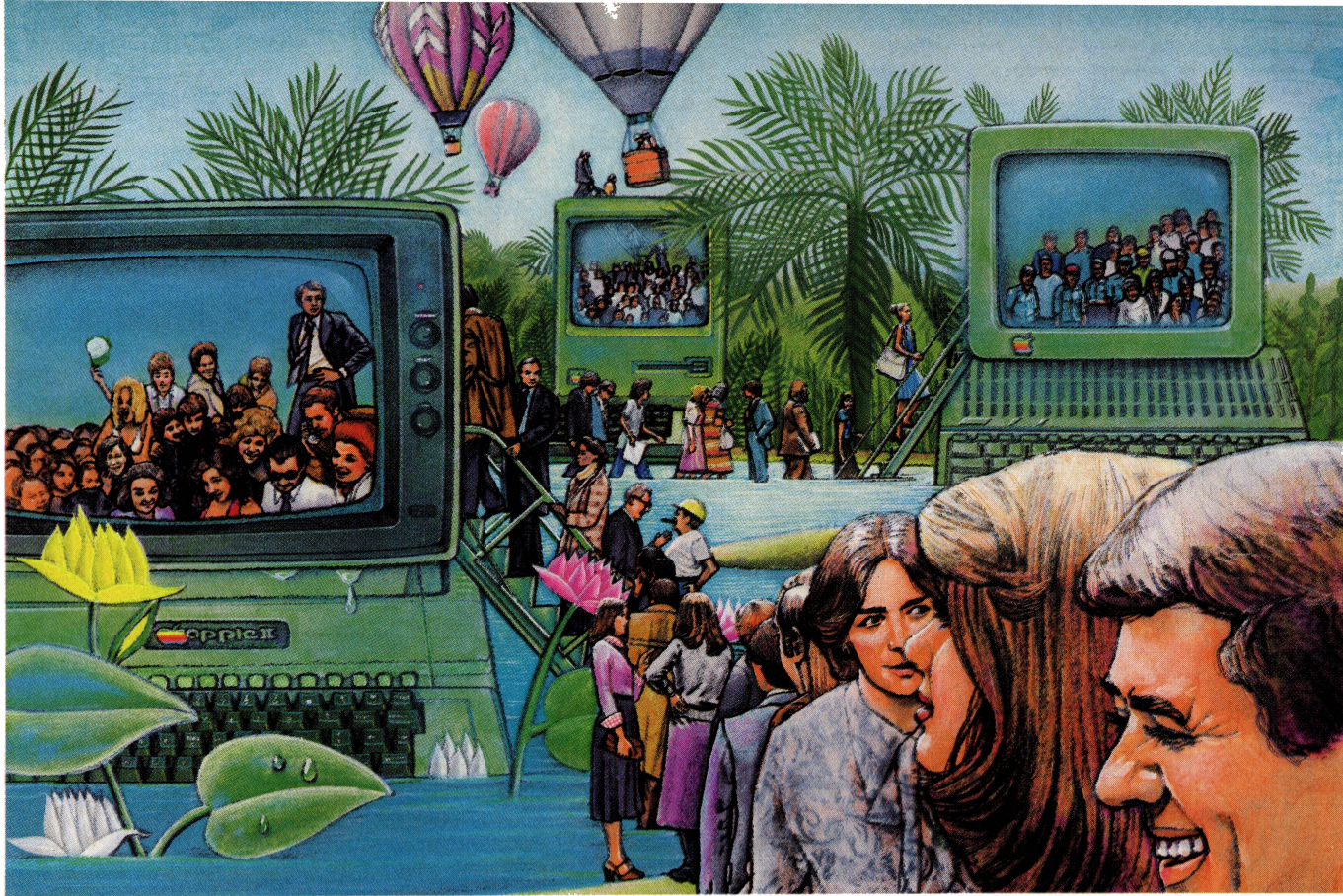
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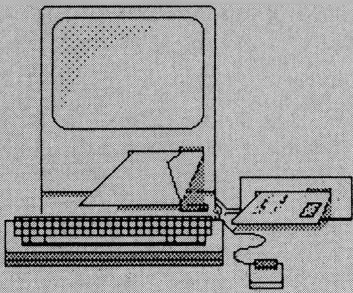
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MACMAIL



ASK AND YE SHALL RECEIVE

Responding to your request for feedback on a listing of the current version of applications and DA's, I wholeheartedly second the motion. And a notation of Mac Plus compatibility would be a tremendous boost for those of us who have upgraded. I, for one, have spent considerable time writing to publishers requesting information on Mac Plus compatibility.

And, just in case Apple happens to call you up someday and ask what the readers' number one "Wish My Mac Had..." is, chalk up one for me on "Full Page Screen."

Ron Bonham

Your wish is our command. Your letter is one of dozens we received asking for a comprehensive listing of current version numbers. I know one appears in MacUser's "New on the Menu" column, but version numbers are all it lists. The September issue of a terrific magazine, "MacNews—The Macintosh Business and Programming Tutorial" contained the answer. They publish a listing of software updates that includes, in addition to the version number, list price, Mac Plus compatibility, copy-protection, and type (i.e., accounting, word processing, game, etc.). It was everything you've asked for. With thanks to MacNews, and their General Editor, John Crane, we are able to reprint this highly informative summary on page 69 of this issue. We will run it again when a significant number of changes have occurred. And thanks for the letters; they help us bring you the information you want. We appreciate the input.

P.S. A number of full page screens are currently available for the Mac. Though not cheap (\$2,000 and up), if you need one now, they are available. Radius, Inc. and Micrographic Images both have products which are available today.

HFS/MFS TIPS

Some goodies: Touch-typists—the HFS versions of Standard Get File and Standard Put File dialog boxes from System 3.2 and above have some keyboard shortcuts that you'll find handy. In addition to typing the first letter of a document in a long list to scroll directly to it, you can perform any of the actions listed in the dialog box. Command-O, Command-C, Command-E, and Command-D will respectively Open, Cancel, Eject, and switch drives. The Tab key switches between drives, Return or Enter chooses the current selection, and, if you have a Macintosh Plus, the arrow keys scroll filenames.

If you don't have HFS because your Macintosh has the older 64K ROMs, there is a way to "infect" HFS across whichever volumes you select, even single-sided 400K disks with the original internal and external drives. Here's how: Go to your source of new Apple software and get a System-type file (with a Macintosh icon) called "Hard Disk 20." Pay no attention to the fact that you do not own a hard disk. Place this file on your startup disk and reboot with that disk. You will notice that the HFS patches get loaded right after you see the familiar "Welcome to Macintosh" greeting. Insert an uninitialized disk into an empty drive slot, choose initialize, and hold the Option key down during the entire initialization process. This tells the newly-patched Disk Initialization Package that you want this volume to become an HFS disk, not an MFS disk. Name the disk and open it up. Notice the extra pixel to the left of the two horizontal lines under the disk window's information bar. This means the volume uses HFS. MFS disks have no such extra pixel. The Finder's "New Folder" command takes a bit longer, as it creates a whole new sub-volume on the disk, but now folders behave properly from HFS-supported applications when you choose Open from their File menu.

Stephen Albert All IV

Thank you, Stephen, for these tips. Since we don't have a tips column, feel free to address your tips to MacMail.

GEORGE A. NELSON ON RAMSTART: WHERE TO GET IT

In your June '86 issue, Larry Pina described my RamStart program, telling people to get it from me. (He also used a very old version with a very old address—mail sent to that address must be forwarded twice!) He should not have published my address without permission. As the screen shot accompanying the article shows, I offered to send the source code to

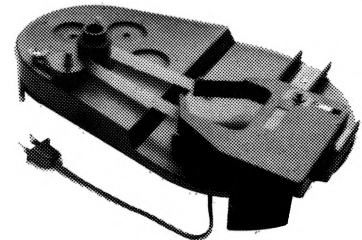
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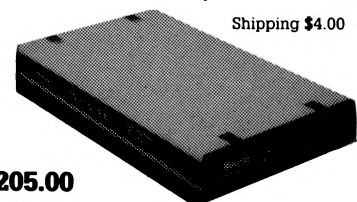


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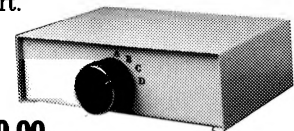
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people requesting it. *I did not set myself up as a free clearinghouse for RamStart.* Eventually I process all "orders," but a better place to get RamStart is: *The Boston Computer Society, One Center Plaza, Boston, MA 02108.*

Send them \$10, the fee for non-members to order a PD disk. Please do not print my address with this letter!

George A. Nelson

For the record, Larry included a screen shot of the "About RamStart" screen which clearly stated that the source code was available FREE if you sent a disk and a SASE to Mr. Nelson. Larry suggested in his text that if you wanted to take advantage of George's generous offer, it might be nice if you "... include a \$5 or \$10 spot for his trouble." We're sorry for any inconvenience.

WHERE DOES CLIP ART REALLY COME FROM?

Here is something that has been puzzling me for quite a while and, I would imagine, many of your other readers as well. How do the people who sell the commercial disks with art—or even business forms—produce the graphic work on these disks? Whether it is art included in a Monster/Werewolf/Detective game, or an art disk itself (*Card Shoppe, MacKnife, Click Art, MacMatbook, EZ Graphix*, etc., etc.), or an IRS form—how do they do it? Surely not with a mouse or stylus pad and a standard program like *MacPaint, MacDraw*, or *Fullpaint*? With a digitizer from hand-drawn art? Or is much of this programmed directly, with a programming language (Pascal, Basic, etc.)?

How DO they do it?

Dr. A.N. Feldzamen

MACazine Graphics Editor Joost Romeu Replies: *Many commercial clip art packages use digitized (using ThunderScan, Abaton or other scanners) line art touched up in MacPaint or FullPaint. Others contract with artists to create original art in MacDraw or MacPaint. This accounts for almost all commercial clip-type art. Graphics files can be integrated into a program by its author. This is a bit like your start-up screen ("Welcome to Macintosh"). Though the graphic appears to be part of the program, it's usually stored in a MacPaint-like format and called up by the program at the appropriate time.*

MACCOMMUNICATION

I enjoyed the article entitled *Innovations in Communications* about Red Ryder by John Venable in your August '86 issue. John mentions that some of the new Red Ryder versions are a little buggy. I have certainly found that to be true. Running RR at times gives one a

new appreciation for professional commercial software.

When RR matures to the point where I can use it with the same degree of confidence I have with my commercial programs I'll send the author my \$40.

John Venable, in his article, says (about Red Ryder Host) that one "intriguing command that holds great promise is entitled 'Launch Application.' As the name implies, this command enables Host to launch an external Macintosh application, and, upon reentry, restore all ... in such a way as to support the illusion that the external application was an integral part of Host ... No such applications exist, since they would have to be customized with Host in mind. But the potential ... is exciting."

Well ... what is exciting for Red Ryder and the Mac is an ordinary feature of the millions of MS-DOS machines out there. Simply type CTTY AUX at the MS-DOS A> prompt, and a remote terminal has control of the computer and its programs. Run a cable from a Mac to a serial port on the PC and you can run PC programs on the Mac, excluding graphics of course—which is a feature still not available on Mac-to-Mac communications. The interactive graphics of Smartcom and AppleLink only hint at the Mac's potential remote Mac-to-Mac graphics capability.

While I can't run any of the 150 programs I have in my Mac at home from my Mac or PC or Ile at work, yet I can run the Ile or PC from a Mac. The only way I've found to run the Mac remotely is by using an Apple II emulator on the Mac. But then this limits me to Apple II-IIe software. I look forward to the day when Mac communications software matures to the point where I can run Mac software remotely, or concurrently run programs with remote users—like Carbon Copy or CloseUp for the IBM PC.

So far I have not seen any communications programs for the Mac that have the power and flexibility available in the MS-DOS environment. To be sure, the Mac has a more user-friendly communications interface, but that's no excuse for a lack of sophisticated functionality.

Mel Jenkins

Florida Keys Community College
Key West, FL

Well. You certainly raise some good points. First, I have used the latest RR (v9.4 as we go to press) without any major headaches and find it well worth the \$40. It displays a great deal of power for a software package at any price, and has thousands of satisfied users. As far as the ability to launch a program remotely, I feel confident that we will see a software solution inside of a year. Bear in mind that the Mac is barely three years old, and we're just beginning to see a new (some call it "third") generation of software. If it can be done on an Apple II or an IBM PC, it will soon be possible on a Mac. Given the choices (switching to a PC or II), I can wait.

COLUMNS . . . WE GOT 'EM!

You recently gave the "rest of us" the opportunity to write you about what we do and don't like about our favorite Mac magazine. Okay, here goes ... but you may not like it!

A recent trend is definitely "Not Hot," to quote Charlie Jackson. That is the disappearance of some of the most knowledgeable and opinionated columnists found in any Mac magazine—the very thing you say *The MACazine* is about—giving us the information and knowledge we need!!! There is no more "MUG Shots," no more of Jerry Daniels "On the Road," and no more "Active Window!" I fully understand Charlie's decision to stop writing, but why not a replacement! When the "Dialog Box" goes, it could be all over for me.

I'm not into music, and "Macademia" is of some interest to me, but I miss the columnists. GET THEM BACK! All of the Mac magazines are covering the same things at about the same time, or so it seems. You are losing the most distinctive thing about *The MACazine*, and the major reason I subscribed!

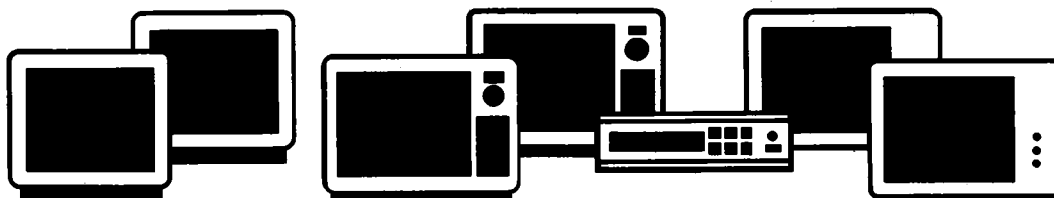
One last thing. I recently moved to a different part of the U.S., and I haven't found a new user's group yet, so I have to depend on the Mac magazines for information and tips.

Michael Brown
Monroe, NC

First, the good news. Apple maintains a toll-free number to call for information about user groups. (1-800-538-9696, ext. 500.) Give them your zip code and they'll give you the names of groups in your area.

Second, all things considered, Michael, we believe our columns are among the best in the business. SBA MAC is a first for a Mac magazine—a column devoted specifically to Business Applications. Power Windows (power user tips and hints), MUG Wrestling (a sort of cross between our old M.U.G. Shots and Active Window columns), and Area Fills (our graphics column) are other excellent columns we've added recently. Macademia, Well Tempered Mac, and Orphan Support all continue to appear. Dialog Box has been replaced by a new, more informative question and answer column—Plugging In, in association with Jerry Daniels' Mac Underground. Jerry's also agreed to contribute a new column beginning next month. He promises it will be even more fun than "On the Road!" Charlie Jackson (and this is the last time we'll say it, we promise) is just too busy running Silicon Beach Software to write a column. We plan to keep bugging him to contribute an occasional piece until he says yes.

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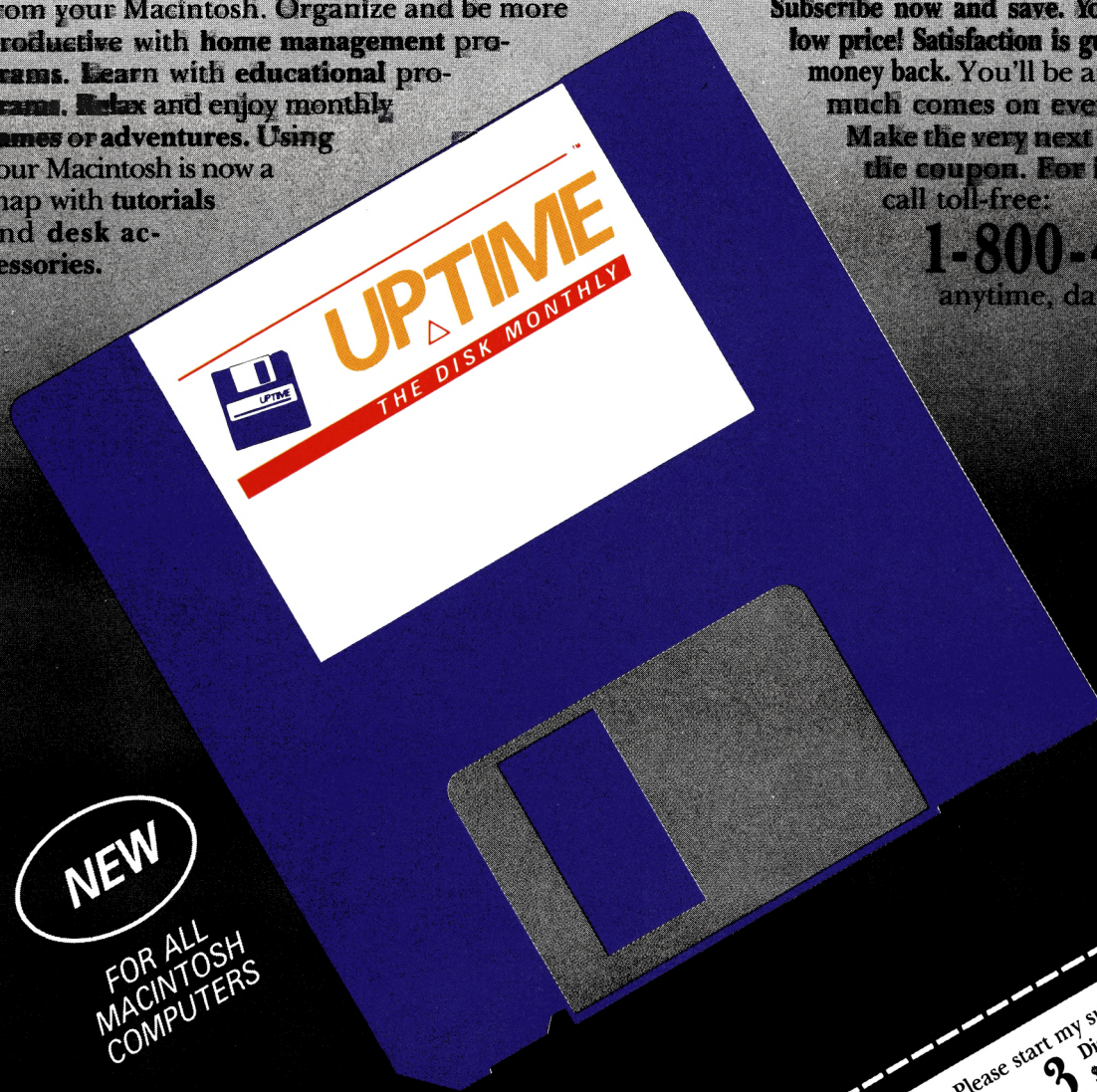
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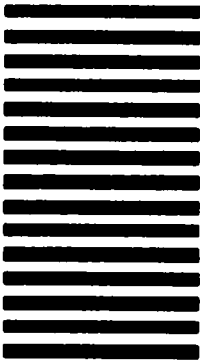
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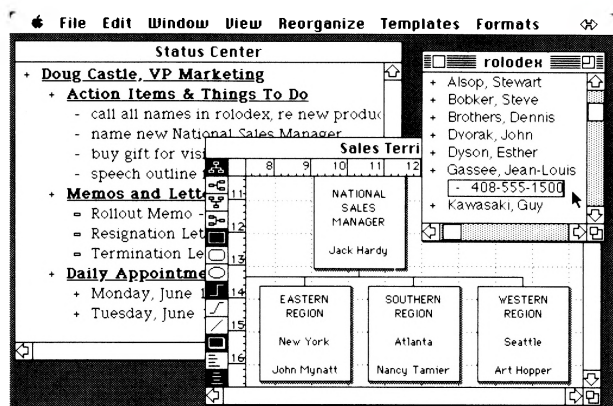
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Artwork by John Odam

Singing bears, fairytale characters, and Macintoshes. Between August 1-3, all were to be found in Anaheim, California, the first two at Disneyland, and the last at the nearby Anaheim Convention Center, host to the second MacExpo sponsored by *MACazine*. The sunny southern California weather was ideal . . . all that was missing were the crowds. A lower than expected turnout marred an otherwise exceptional show. Apple was just completing their national road show, and at the last minute apparently decided not to attend. Furthermore, *InfoWorld* once again didn't list the MacExpo in their Coming Events column. Now all this could have spelled disaster, but user enthusiasm is still alive and contagious in the Southern California Macintosh community, and the several thousand visitors who did attend were treated to a variety of exciting, hot new products at what turned out to be an excellent showcase event.

WHAT WAS HOT?

SuperPaint™ In fact, Charlie Jackson, the company president, had to move the large display monitor down to the end of his corner booth, because every time he gave a demo the aisles got so crowded with onlookers that you couldn't get by. *SuperPaint* (which combines *Draw* and *Paint* capabilities in the same application) is definitely hot. It should be released around the time you read this report.

While Levco again displayed their dazzling *Prodigy-4™* (the price is now down to a mere \$7,000), across the aisle the MacMemory team did a brisk business in memory upgrade sales. Nice, clean boards which snap in (no cutting or soldering), and very competitively priced. Their latest product, *MaxSave™*, is a dandy. Introduced at the MacExpo, it's a snap-in module for the Mac Plus which lets you recover your entire RAM disk intact after a system error! At \$119 it's a superior alternative to using a considerably more expensive and slower external RAM disk. MacMemory has a reputation for solid customer support, and their expanding product line looks very good. (a separate story on *MacMemory* appears elsewhere in this month's issue—Ed.)

The award for the most entertaining booth goes to Cauzin (publishers of the Cauzin Softstrip™ System, a product which has revolutionized data storage and transfer). They demo'd that insanely hilarious desk accessory "The Talking Moose" (you have to see it to believe it). Not only that, but Gail, possibly Cauzin's cutest employee, was decked out in

. . . you guessed it, a talking moose costume (the resemblance was uncanny). Needless to say, the kids loved it and a good time was had by all. They also previewed their new *Laser Stripper™* which will enable you to print Cauzin SoftStrips on the LaserWriter.

The sleeper of the show was introduced by Jim Fitzsimmons of MacAmerica. It's a disk-based spooler called *LaserSpool™*. That's right, folks, a spooler for the LaserWriter! And it really works (though not on *PageMaker™*—just applications which use the standard LaserWriter driver). *LaserSpool* installs as a desk accessory, and its use cuts about a third off your total waiting time.

INTERESTING NEW PRODUCTS

Living Videotext introduced *MORE™*, a new "idea processor." So far, the only obvious shortcoming is the lack of an Undo command. Other than that, it looks like a winner. Logic Extension introduced *Measure-Up™*, a sophisticated database program which processes and stores test questions. It lets you store pictures with questions, and it can vary question-answer formatting when preparing tests. Looks like a very capable product, one which should have an enormous impact in the field of education. MIDIdeas was demonstrating their new *TDBK-20+™*, a SCSI tape backup system for the Mac Plus. This appears to be the most versatile streaming tape backup system currently available. It backs up virtually any hard drive, regardless of size, using additional tape cartridges to handle the extra data stored on larger capacity drives (a directory is built on the first tape). It's claimed that even some copy-protected software can be backed up and restored! At a \$1095 list price the *TDBK-20+* seems like a good investment.

HabaWord™ was being shown in its "near final?" beta form. It looks very promising, and I'm told that the release date is now only weeks away. Be prepared for a significant improvement over both *MacWrite™* and *Microsoft Word™* if it ever gets released. Things like variable columns, and other built-in page layout capabilities, retention of *MacDraw™* graphics formatting, auto resizing of graphics with column changes, an ability to search and replace font types, sizes and styles . . . etc., etc., etc.!

Among the novelty items was a genuine leather mouse pad from Pilot Enterprises. The Mouse-Hide, as it's called, "adds a touch of class to your desktop," and makes a great gift for the user who has everything. Tacklind Design introduced *TakeCover™*, a combination dust cover and carrying case for the

Macintosh (clever idea) made out of sturdy, yet lightweight rip-stop nylon. It accommodates all Macintosh configurations. ImageWorld added two new disks to their exceptional *MacMemories™* Series: "Borders, Frames, & Signs" and "Christmas & Winter." These are the first two volumes of what will be the *MacMemories* "Blue Ribbon Edition," an entirely new collection of clip art images of yesteryear. A definite "must" item for desktop publishers.

Brainpower had *DesignScope™* on display, a unique software analog and digital electronic simulator which lets you design circuitry using a top-down approach. Great Wave Software showed their latest in educational and creative software for children. *Spellswell™*, a batch-style spelling checker, caught the attention of many of the MacExpo visitors, particularly regarding its ability to catch subtle errors that other spelling checkers just can't handle. Imagine Software demo'd *Smart Alarms™* and *Appointment Diary™*, in my opinion two of the most useful desk accessories around. The most expensive software product at the show (\$6,000) was Structural Measurement System's *Parameter™*, a package designed for the collection, storage, conditional monitoring, and trending of complex engineering parameters (even at that price, it's a bargain for industry). I also picked up a box of the new CenTech double-sided disks. They come in five different colors, useful for keeping various kinds of data visually separate. Let's see, red for active files, orange for retired files, green for clip art, yellow for . . .

A FEW RANDOM OBSERVATIONS

As to be expected, some vendors did poorly while others fared quite well (hot products always outsell "cold" ones). By far, one of the biggest sellers was the *MacFan™* from Blowhard Industries. Another fast selling item was *MacTilt™* from Ergotron. Both these products offer superb quality at a nominal price. Williams & Macias did a steady business at their booth. Their product, *myDiskLabeler™*, is no longer copy-protected, and the latest version offers color printing on the ImageWriter II. On the low end, public domain software didn't seem to be selling well at all. One user group, however, offered a limited number of attractive, lighted crystal Macintosh displays, which sold out completely by the middle of the third day. Several new books and periodicals appeared for the first time, most of them dealing with desktop publishing. One of the more interesting publications I ran across was a new

quarterly "Journal of Personal Computer Aesthetics" called *Verbum*[™]. It's a showcase for fine "electronic art," and is published by our talented art director, Michael Gosney. Another good-looking publication was *Macintosh Desktop Typography* by John Baxter, the initial volume in a series dealing with desktop publishing technology. It covers most of the basics and is more of a reference work than a guide. *LaserWrite It!* by James Cavuoto, on the other hand, is a practical "how to" manual. It's full of examples and tips, and is written primarily for the new entrant to the field of desktop publishing. The Public Domain Exchange was promoting *The Best Mac Deal*. While actually a mail order catalog (order forms are included in the back of the book), it covers public domain and user-supported software in sufficient detail to be a useful reference.

In the conference arena, Jerry Daniels of Mac Underground fame spoke about . . . gee, well . . . just all kinds of things, but mainly the information revolution and his role in making it happen. Jerry is an entertaining speaker, and his address was given to a packed audience. The fact that there was standing room only, and not too much of that, shows that there's a great deal of interest in this field.

Occasionally I've had difficulty tracking down specialty software and newly released products, particularly imports from overseas. *MacAuthor*[™], out of England, is one such example. Although version 1.1 is out, it seems it can't be found anywhere. If you're trying to track down a similar hard-to-find product, give Computer Ware a call at (800) 235-1155. They were at the show and their booth was constantly mobbed (and yes, they had copies of *MacAuthor* v1.1 for sale there). Computer Ware offers what appears to be the largest selection of products currently carried by any mail order house, and average discounts run from about a third to nearly half off list price. You pay for the shipping. The General Manager of Computer Ware is Derek Van Atta, and he says that if there's something you want that he doesn't have in stock, he'll try to get it for you at the best possible price.

THE BOSTON MACWORLD EXPO

Old world elegance and charm characterize historical Boston, a sightseer's paradise and recent host to the *Macworld* Expo (which took place a scant two weeks after Anaheim). Once again, Mitch Hall put on a successful show. It was big . . . not as big as the San Francisco *Macworld* Expo last January . . . but big enough. This was the place to come if you wanted to see where the Mac is heading. The evangelistic fervor of past shows, however, was absent. Instead, there existed a different kind of excitement—one based on what the Mac can do to enhance productivity and make things easier for the dedicated user. Thursday and Friday found the show crowded with serious buyers from business and industry. The traditional end-user Saturday mobs, however, failed to materialize, and Saturday turned out to have the lightest attendance.

The *Macworld* Expo was loaded with hardware. Everywhere you turned there was a new SCSI hard drive, tape backup system, or other peripheral. Surprisingly, no single product at the Boston show attracted the crowds like *SuperPaint* did in Anaheim. The nearest thing to a crowd-stopper turned out to be the MegaScreen[™] from Micrographic Images. The resolution of the MegaScreen is superb, and its large display area is ideal for both desktop publishing and CAD engineering applications. Unfortunately, its price places it well beyond the means of the average user. One of the biggest selling items at the Expo was *MacLightning*[™], a spelling checker that offers unsurpassed speed, along with an error-free dictionary. Everyone should use a spelling checker to catch inadvertent typos and habitual misspellings, and *MacLightning* is one of the best. The distinction of having the most eye-catching booth belonged to Ann Arbor. Their brightly lit marquee-like structure for *FullPaint*[™] drew a lot of attention and could be seen from well across the room.

NEWS BULLETINS

One of the highlights of the *Macworld* Expo was the press conference held on the first day at which FTL System's long-awaited release of *MacTeX*[™] was formally announced. Referred to as a "desktop typesetting" product, *MacTeX* takes the user to a level above ordinary "desktop publishing" and into the world of professional page layout. Its capabilities include automatic kerning to the specs of individual typefaces, algorithmic hyphenation, pure PostScript output, a limited WYSIWYG preview mode, and a multitude of additional advanced features. *MacTeX* supports processing on the Linotronic 100 and 300 ImageSetters at speeds that are significantly faster than that which can be achieved using conventional page layout programs. The good news is that it's available now! The bad news is that it's not anywhere near as friendly or Mac-like as *PageMaker*[™], requiring the user to learn a rather complicated typesetting language (TeX). The results are probably worth the effort to desktop publishing perfectionists.

At the same press conference, AltSys announced *Fontographer*[™] 2.0, a version which lets the user "modify" existing fonts, fill individual letters with gray shadings, add fractions to fonts, graphically set kerning pairs for automatic use with typesetting software like *MacTeX*, and much more. As *Fontographer* continues to evolve to meet the needs of a rapidly expanding desktop publishing industry, it becomes apparent that the traditional use of metal type must eventually give way to the onslaught of this new technology. Desktop publishing is "where the action is" because, if you stop to think about it, communication by the written word is fundamental to our way of life. Cheap, fast, easy means of accomplishing information transfer will always be preferred to expensive, slow, difficult means.

MORE INTERESTING NEW PRODUCTS

While at the *Macworld* Expo, I picked up a box of C.Itoh double-sided Rainbow Color Diskettes—10 different bright colors in their box. The quality appears to be excellent. I intend to put both the CenTech and the C.Itoh disks to heavy use. Only time will tell how they hold up, but so far no problems. If you'd like to color-code your data for easy identification but don't want to fuss with assorted labels, stickers, or colored marker pens, these new "rainbow" disks might be the way to go. Speaking of color, Ann Arbor's reintroduction of *FullPaint*[™] comes bundled with *ColorPrint*[™] so that drawings can be printed conveniently in color on the ImageWriter. Also, *FullPaint* is no longer copy-protected, which means that it can be installed readily on double-sided and hard disks. *FullPaint* is a fine program, and now that the obnoxious copy protection scheme has been removed, I plan to use it exclusively in place of *MacPaint*[™].

Esoft also released *ProDraw*[™], a new drawing package which lets you generate color separations, complete with registration marks, for 4-color publishing. Cricket Software previewed *Cricket Draw*[™], a program that includes a variety of special effects drawing tools specifically customized for use with PostScript devices. And Challenger Software announced a version of *Mac3D*[™], which has some astonishing new features, including the ability to create your own "tools" and add them to the tool palette, six variable light sources which can be positioned wherever you want them, multiple levels of gray shading, and more. *Mac3D* is a product which started off a bit shaky, but just keeps getting better and better.

Caribbean Enterprises introduced The Bag[™], a well-crafted carrying case for the Mac which is made from the finest Colombian leather. It's another one of those luxury items that makes a perfect gift for the "user who has everything." ScanCoFurn introduced a smaller model of their popular MacTable[™]. Elegant Scandinavian styling combined with carefully designed functionality makes this desk the perfect Macintosh workstation (reviewed in the September issue—Ed.). QMS was demonstrating their new line of laser printers . . . strong competition for the Apple LaserWriter[™]. PC World Communications finally got an edition of *Publish*[™] magazine on the stands, and it turned out to be worth the wait. Lots of good info crammed into several informative articles. Both Dynamic Graphics and Electronic Publisher showed some fine new clip art packages targeted toward desktop publishing. And Casady Company presented their collection of *Fluent Laser Fonts*[™], a growing number of professional quality, low-cost fonts for use with laser printers and other PostScript output devices.

AlSoft introduced *DiskExpress*[™], an application which effectively deals with the problem of fragmentation. Fragmentation



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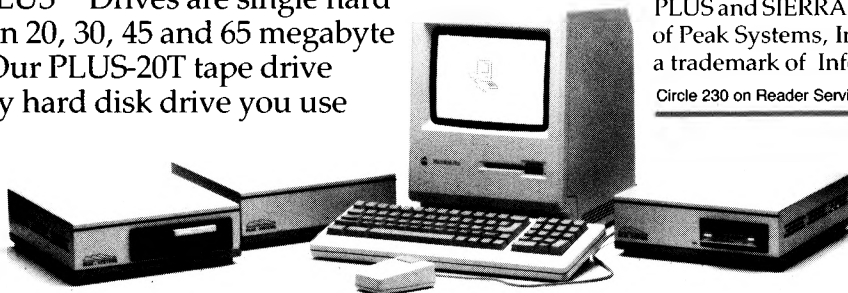
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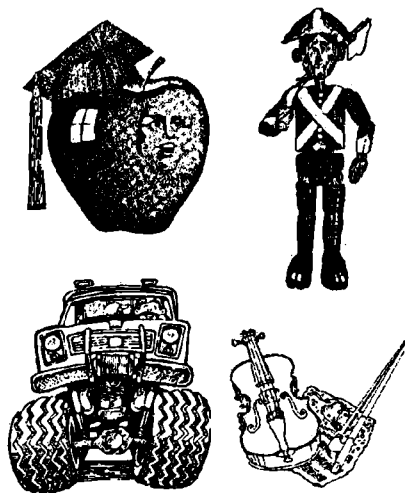


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(the scattering of files in block-size pieces to wherever empty disk space is available) can substantially slow the operation of your hard disk. *DiskExpress* collects all the file pieces and rearranges them into contiguous blocks so that they can be read sequentially by the drive head. For more severe problems, 1st Aid Software announced *The First Aid Kit™*, a recovery system for unreadable disks and damaged files. Designed for use by the novice, all the tricky stuff is built right into the program, making it simple to use.

Select Micro Systems introduced *MapMaker™*, a versatile package which lets you create customized maps from templates. It comes complete with a built-in database for storing vital statistics. Some of *MapMaker's* more useful features include a variable zoom capability, an ability to selectively display assigned attributes such as area patterns, legends, points, names, text items, etc., and full color printing. Looks pretty impressive.

T/Maker demonstrated *Write-Now™*, a new word processor that features multiple columns, graphics on the same line as text, an unlimited number of open documents, a built-in 50,000-word spelling checker, footnotes that can be automatically numbered and edited on screen, and much more. *Write-Now* is written entirely in assembly language and is extremely fast, even when reformatting or repaginating a large document. I was thoroughly impressed by its performance. Orange Micro came out of nowhere and announced *RagTime™*, an integrated, low-cost word processing and desktop publishing package. Versatile and easy to use, this one looks like it may be a hit! Forethought introduced *FileMaker™ Plus*, a completely new version of the original form-oriented database. Many enhancements suggested by users of *FileMaker* have been included, and the result is a considerably more powerful program. Across the room, Ergotron quietly introduced the *MacBuffer LW™*. Yes, you guessed it, a print buffer for the LaserWriter. This quality tool will find wide acceptance throughout the desktop publishing industry wherever there's an idle Mac, or a network of idle Macs, waiting for a print job on the LaserWriter to be completed before productive work can resume. I'm told that *MacBuffer LW* will even handle *PageMaker* files! Ergotron's *MacBuffer* (print buffering for the ImageWriter) was a big seller too. Ergotron sold all the units they'd brought with them to the show before the end of the second day!

I ran across another newly published book at the *Macworld* Expo, this one a real gem. Created entirely on the Macintosh, it's Michael Green's *Zen & The Art of The Macintosh*. Big, beautiful, and exotic, it's an engaging portrayal of what one man can do with an idea and a Mac. It's one of those books you'll enjoy spending leisurely moments with.

RUMOR AND GOSSIP CORNER

While *Macworld* hosted their "by-invitation-only" dinner get-together, *MacUser* (that other great "macazine") stole the lime-

light with a gala 3-hour dinner-cruise party held aboard *The Spirit of Boston*. Obvious style, class, and elegance made it a smash success! There were rumors of a newly-emerging Macintosh personality who's on his way to becoming a cult figure among his fans (does anybody know who the "Tweed Man" is?). The best *Macworld* conference presentations were those given by Andy Hertzfeld. If you thought *Switcher™* was hot, wait 'till *Servant™* is released! *Microsoft Word™* v3.0, due out in a few months, will have just about everything anyone ever wanted in a word processing package, and it won't be copy-protected. Another major software company is about to close its doors due to financial difficulties. More companies are negotiating mergers than you might suspect in order to keep from going under. (Had you heard that Boston Software Publishers was acquired by Letraset, a huge multi-national art materials concern?) Speaking of mergers, watch for some hot new products from various software publishers to be released together in "bundled" packages . . . two or more integrated products for the price of one. Apple is paranoid about security, and with good reason. IBM is jumping into the desktop publishing game in a big way and the competition is beginning to heat up. Also, the Desktop Engineering field is about to explode. Tremendous potential there, and you can expect some significant announcements early next year from Apple in support of this area. The key ingredient for success will be mainframe equivalent performance at a fraction of the cost. If Apple does it right, their stock could double in price within a few months. Prices on existing hard drives are about to crash as newer, better models are being released. Bargain time is just a few months away now as vendors scramble to clear out inventories. There's a slump in the game market. The Mac is grown up now and the current emphasis is on productivity. With few exceptions, games just aren't selling like they were when the Mac was first introduced. Once you've played a computer game a few times anyway . . . well, who cares after that. After the novelty's worn off there's not much left to keep your interest.

FINAL COMMENTS

Both Expos had a lot to offer. I was favorably impressed with the quality of the new software. There were a lot of fine products that I didn't have space to mention in this report. Generally, if they were covered in my Chicago '86 MacExpo Report (see the June issue), I tried not to include them here. I felt it more important to leave room for the newcomers. Even at that, all those others that I've left out would fill several reports. When you consider that there were virtually hundreds of products on display at both Expos, you realize that a report like this can only serve as the briefest of thumbnail sketches. To appreciate the panoramic richness of a Macintosh Expo, you just have to be there. It's an experience you won't quickly forget . . . guaranteed! ●

The MACazine November 1986

SEYBOLD

DESKTOP PUBLISHING

CONFERENCE

A rundown of the Seybold Desktop Publishing Conference (which took place in San Francisco the first week in September) has to begin with a standing ovation for the Full Page Display by Radius. The FPD is unique in that it complements the Macintosh screen, rather than replacing it, while also remaining the smallest of the big screens (it will fit a single actual-size $8\frac{1}{2} \times 11$ page). It's a brilliant piece of engineering, which is why over half the Macintosh software publishers at the show were using the FPD to show off their own products. With the FPD, it is possible to do interactive layout on the full-page screen, while keeping your graphics, articles, coded copy, etc., on the regular Mac screen. This greatly reduces the clutter that results from working with overlapped windows.

Even more amazingly, *windows scroll from one screen to the next*. The FPD sits to the left of the Mac. As you drag a window off the right edge of the FPD, it starts to appear on the left edge of the Mac screen. You can even work on a window that's half on one screen and half on the other! This may not seem applicable to desktop publishing, but spreadsheet enthusiasts will love it. The display is also the sharpest of any of the big screens, and most closely matches that of the Mac. The only drawback is the price tag: \$1,995.

ADOBE ANNOUNCES "ATLAS" POSTSCRIPT CONTROLLER

Adobe announced a new hardware breakthrough, their "Atlas" Postscript controller. Sporting a 68020 CPU, it can "print up to 18 changing pages per minute," compared to the LaserWriter's rating of 8 ppm. Adobe was showing it in prototype. Agfa-Gaevent un-

by Henry Bortman

veiled the first production model, the P400PS. As the model number implies, it is a 400 dpi printer, a 33% increase in resolution over the current crop of laser printers. In fact, it produces images by a different method than laser printers. It uses (are you ready?) LED array electro-photographic marking technology. The increased resolution yields sharper character edges, even at small point sizes, and the marking engine produces a much blacker image, better suited to reproduction, than does the LaserWriter.

PAGEMAKER AND IBM PAGEMAKER UPDATE

On the software side, the most significant product for Macintosh users at Seybold was running on an IBM AT. It has a familiar name: *PageMaker*.

Aldus was demonstrating a pre-release version of *PageMaker 1.0* for the IBM PC, which runs under *Microsoft Windows*. This is virtually the identical application that Mac users are already familiar with, with several significant enhancements. Aldus has added kerning and a 90,000-word hyphenation dictionary. It is also possible to edit interactively while displaying facing pages. The maximum number of pages has been boosted from 16 to 128. And everything's faster. The PC version will import files from a number of the most popular PC DOS-based word processors and graphics programs.

Strictly speaking, this is not a "PC" version, but an AT version. Aldus said the minimum

configuration should be either an AT or an XT with an accelerator board. Anything less will work too slowly for most users' satisfaction. A mouse is also required. Price: \$695.

What does this have to do with Macs? First of all, the product enhancements announced by Aldus for the PC version 1.0 will all be included in the upgraded Macintosh version, 2.0. Both products will be shipping "by the end of the year." Mac version 2.0 will be \$495. The upgrade will be free for anyone who buys version 1.2 after September 1st, \$75 to currently registered owners, and \$37.50 for those with extended support.

I saved the best part for last. The AT and Mac versions will be *file compatible*. I didn't believe it either. But four different people at the Aldus booth said it was true. One of them said "except for the graphics." An Aldus spokesperson later confirmed that, with the exception of graphics saved in the PICT format, the IBM and Mac versions of *PageMaker* will indeed be file compatible. This feature could be the one that sets the pace for the desktop publishing revolution next year. It certainly appears to be a smart move by Aldus, considering the number of competitors they will have in the IBM arena.

MACPUBLISHER II AND READY-SET-GO UPGRADES

MacPublisher and Ready-Set-Go were also showing upgraded versions. I didn't get a chance to look at Ready-Set-Go 3.0, but I did spend some time learning about the transformation of MacPublisher II. The product has been bought and significantly improved by Letraset, the well-known makers of transfer lettering, and is now called *LetraPage*. The main change is a simplified user interface.

Instead of having to create a rule line as a separate file and then place it, you can now select a line style from the graphics palette and then just draw it. Another major improvement: the maxi-page is now interactive. It's possible to enter text that doesn't originate from a file. And if you edit text on the maxi-page that did come from a file, the file is also modified. You can group page elements for cutting/pasting to another page. An Exacto knife tool lets you trim graphics any way you want. "Under \$600," I was told. And "there will be an upgrade path," but no information on what it will be. Projected release date: November.

PS COMPOSE, THE NEW KID ON THE BLOCK

The new kid on the desktop publishing block, *PS Compose*, made its debut at Seybold. It's positioned at the "high end." That means it costs \$2,000. But it also means that its capabilities exceed anything we've seen so far. It is a tool for professional typographers. Most significantly, it allows you to pour text into *any* arbitrary shape. It will *automatically* run around graphics, and you can determine interactively the width of the space in the gutter (white space) around each graphic. The user works in two windows. One is interactive, the other displays a coded text file. Changes in either window are automatically reflected in the other. Neat trick. It will also output to Compugraphics' typesetting machines (text and straight-line rules only,

not graphics). You pay extra for this capability though.

These are merely the things it can do that the other guys can't. It can also do just about everything they can. It's scheduled for a November release, and head honcho Robert Simon has promised us a review copy "real soon." Stay tuned to *The MACazine* for further developments.

DEDICATED AD PROCESSING SYSTEM, WITH COLOR OVERLAYS

A brief mention must be made of Digital Technology International's Display Ad Makeup System, \$2,495. It's an ad layout application, tailored for use by weekly newspapers, small dailies, tabloids, etc., to reduce the time required to produce those otherwise-tedious-to-make-up ads that name, describe, and declare bargain prices on 50 different products in only half a page. It has one feature that no other program has implemented yet—color overlays. You can produce four separate images, with a full gray scale on each, simply by clicking on various layout elements and assigning them to one or more of the color layers.

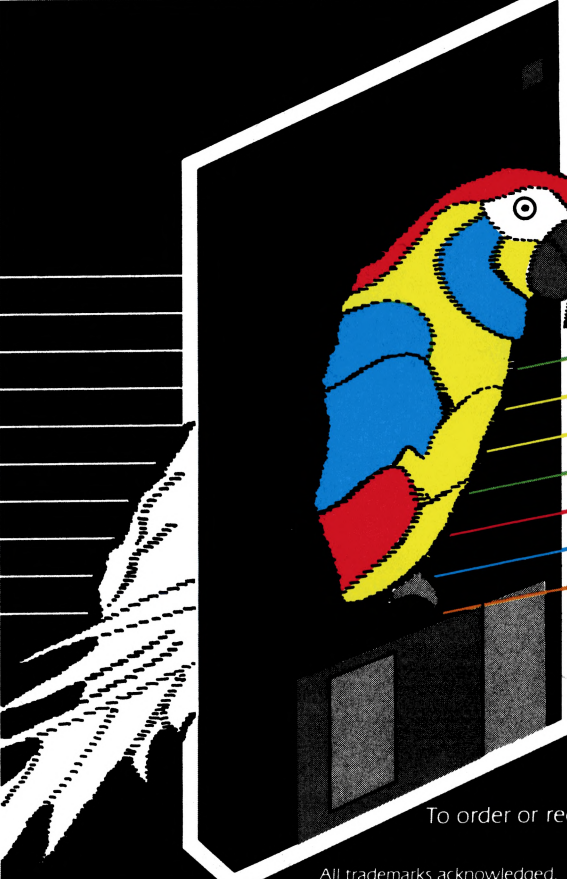
CRICKET DRAW GENERATES POSTSCRIPT OUTPUT, NOT BITMAPS!!

My favorite software product at the show was *Cricket Draw*, which first appeared at

Macworld Expo in Boston. From the publishers of *Cricket Graph*, this \$295 product was "two weeks from beta release because we keep adding new features to it every day." It is going to expand the Macintosh graphics world to another dimension. No, it's not a 4D program. It's a drawing program that accesses the capabilities of PostScript language, which has so far been untapped by Macintosh graphics software. Fountain images (shapes filled with continuously varying shades of gray); text—placed along an arbitrary path, rotated in 1 degree increments, set in any shade of gray; composite bezier curves that are as easy to manipulate as a *MacDraw* polygon; shadows in any width and gray percentage, on text as well as geometric shapes; instant generation of parallel or radiating lines of any width; shearing of graphic images and text.

The best part is that this generates PostScript output, not bitmaps. If you print it on a LaserWriter, you'll get the full 300 dpi. If you run it on a Linotronic you'll get the full 1200 or 2400 dpi. Cricket even lets you see the resulting PostScript code in a separate window (although you can't edit the code interactively to effect changes in the graphic image). And the way they chose to implement this, bypassing the Laser Prep, makes *Cricket Draw* a great tool for learning PostScript as well as for generating graphics. You're going to want this one. I promise.





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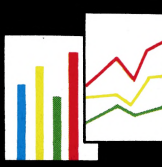
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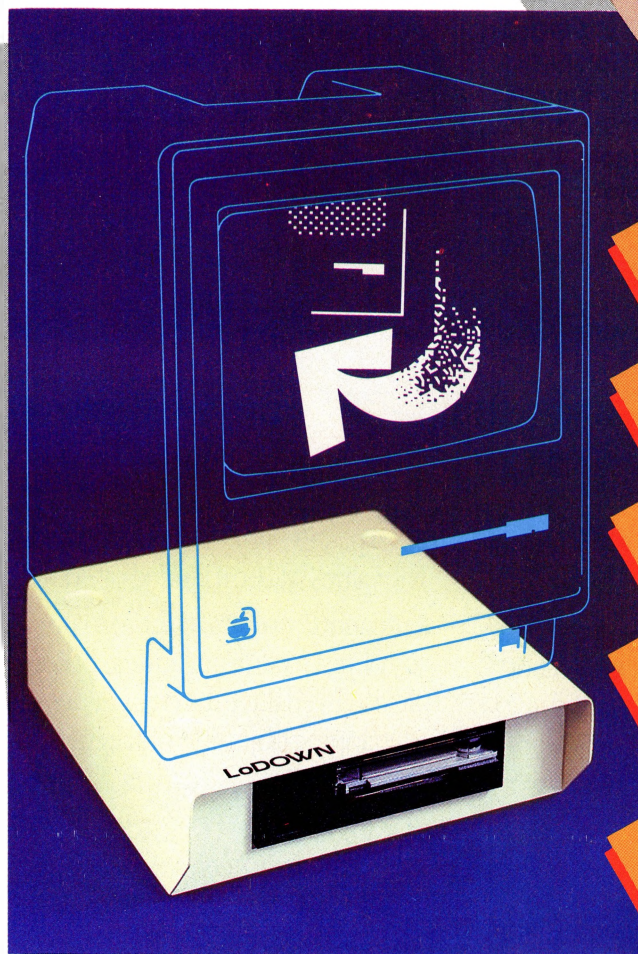
Software	Time In Seconds
MacWrite	3.8
MacDraw	3.2
MacPaint	2.5
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The MACazine November 1986

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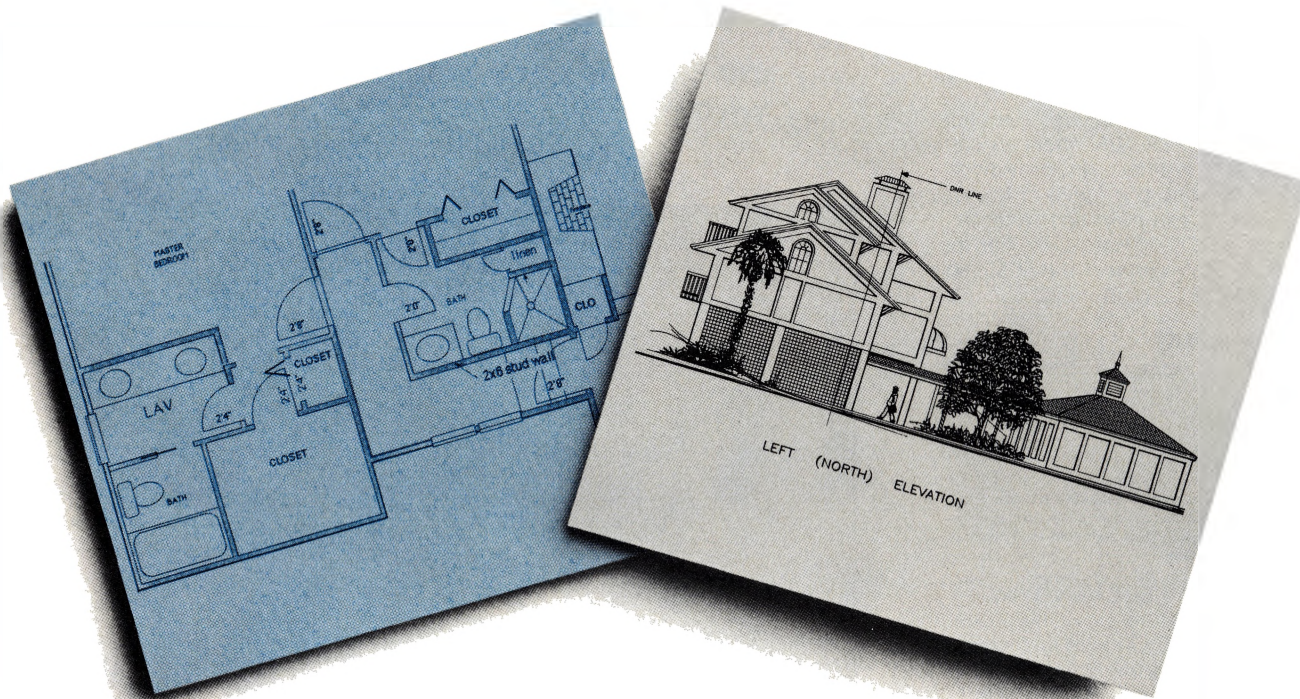
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Plus:

Create circles by radius or diameter, arcs by radius or defining 3 points. For irregular shapes our polygon and free-hand tools offer dynamic editing, auto

closure and adding sides to an existing object. Zoom in and magnify a portion of your drawing up to 8x; or zoom out and see as much as 4' x 4' in a single window, maintaining full drawing capabilities at any view. Even rotate objects 1° at a time.

Don't Be Deceived

MacDraft is only \$269.00, yet it offers the majority of drawing capabilities of CAD systems costing much more. It is the only drafting program that takes full advantage of the Macintosh user interface.

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SOMEWHERE OVER THE RAINBOW?

by Joost Romeu

So you've designed your Christmas card but need 100 copies—in color. Or you're doing work for a newspaper or magazine and the art director wants color "flaps." Or you want to work with the variety of hue and value our vision can appreciate.

And you don't want to burn out your ImageWriter head. Or wait forever for your Laser Color Printer (it'll happen someday) to get through the large run.

IMAGEWRITER? LASERWRITER?

How practical is the color ImageWriter?

The cloth ribbon typewriter was a dead species ten years ago—replaced by the carbon ribbon. Variations in print quality and smudginess, not to mention color running in the two-or-more color varieties, rendered the color ribbon unworkable for serious business.

The ImageWriter has certain advantages over the LaserWriter. Try printing a *MacDraw* document larger than two pages on the LaserWriter. More often than not (due probably to slippage between the smooth drum and paper or other mechanical factors) the images you get may not align exactly in either the X or Y direction (reprinting the page may alleviate the problem.) With accurately punched paper on the ImageWriter you're more likely to get exact registration. The ImageWriter is also a faster machine.

Nonetheless, for most graphics applications the LaserWriter is the printer of choice. It has much better resolution. Soon there will be a plethora of *MacDraw*-like programs addressing its PostScript capabilities and allowing the user to generate graduated screens, accurate grey shading, etc. [See this month's article, *PostScript Halftones*, for more on this—Ed.]

COLOR SEPARATION

There are thousands of ways one can apply color to a page. In order to print that original in large quantities it must be color separated. Simply speaking, the original (art or photo) is photographed using color filters. This produces three separated negatives (a red, yellow, and blue). This set of negatives is used to construct a plate. Each plate holds one of the colors. When overprinted, the plates should produce a reasonable reproduction of the original. Unfortunately, no matter how good the original is, a good deal of color correction skill, time, and expense is usually required before the finished color separation produces acceptable prints.

PRE-SEPARATION

To get exactly the color one desires, one can pre-separate the artwork. This amounts to preparing the artwork so that the (human) printer receives a number of registered overlays, with opaque areas corresponding to each different desired color, and containing directions stipulating how these areas are to be printed. Because the colors have been "pre-separated," the plates are accurate and usually do not require any reworking.

Typically, overlays are acetate sheets covered by a transparent red film. The artist must painstakingly cut the film so that it exactly covers the area to be colored, and then label it (percent color, screen sizes and types, dropouts . . .) so as to clearly indicate to the printer the color desired. Often, color areas are surrounded by a black line. Cutting to this "holding" line usually results in a slight overlap ("trap") of color and assures that there won't be any white gaps.

Depending on the press, you can have something printed as a two, three, or four (and more) color piece. One color is usually black (and grey). Colors used are generally the primary values; red, blue, and yellow, but you can ask for unusual dyes, including gold and silver leaf . . . Since one can get by very capably (and most economically) by specifying primary (red, yellow, blue) and black color percentages, I will only refer to the typical case.

There are no programs which I know of designed explicitly to help one produce separations.

Mac color programs address color printers, but are not designed to produce overlays. The work still must be done by hand, using the application the artwork originated in.

PREPARING OVERLAYS

There are a few things to consider when making overlays.

- **Adjacent Areas**—Any adjacent areas not separated by a black line or white space must be on different overlays. Otherwise, there is no way for the printer to know where one color ends and the next begins.

- **Holding lines**—Color percentages are printed as closely spaced dots. Those dots will not render as a sharp edge. Because the human hand is not perfect when cutting overlays, artists usually provide holding lines within which to contain each color. The edges of the color overprint this black line—the result is boundaries which are crisp and sharp.

The holding lines also provide the printer with a way to delineate where one color ends and the next begins.

- **Registration Marks**—Although it may seem obvious to you, nothing is obvious to the discriminating printer (who is used to artists with wild requests—my first illustration for *Science Digest* had 16 overlays and it was in black and white!) and registration marks should always be provided (see Figure 1). There should be at least three registration marks, non-symmetrically placed, outside of the image area.

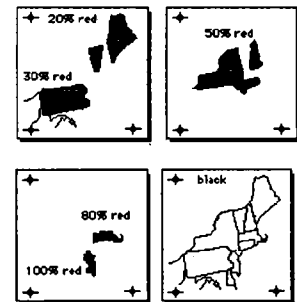


Figure 1.

- **Solid Areas vs. Patterned Areas**—One may, for special effect, provide an overlay with patterned, rather than solid areas, but exercise caution. If you are ordering a percentage of a color, and providing a (for example) dotted pattern, the color screen (which the printer will insert) may not show well on your dotted computer pattern.

To be on the safe side, only use full value (100%) colors when you provide patterns—the patterns will provide the white space necessary to make a color appear lighter. Use black fills if you intend to order color percentages.

- **Labeling and Color Tables**—The overlays are not complete until the areas are labeled. Use a color wheel or chart to determine the percentages of red, blue, and yellow necessary to get the colors you want. You can either type the information in the solid area in white (use "outline" style—the person preparing the film will later opaque-in the letters), or refer to areas with labels.

Label each sheet with your name, phone number, date, and other necessary identification. Mount the "base art" on stiff illustration board. Then mount (tape on one edge so that each flap can be picked up) each overlay over the other, making sure they "register." Finally, tape a sheet of transparent paper over the set of overlays to keep everything clean (and on

which to write last minute instructions or changes), and top that off with an opaque sheet of paper to keep everything cleaner and give your work a professional appearance.

● **Comp**—Give the printer a roughly colored copy of the work as you'd like to see it finished. This will help him/her decide what to do if there are questions. Make a print of the Mac drawing and color it in with pencil or marker.

USING THE MACINTOSH TO GENERATE OVERLAYS

The process of breaking a *MacPaint* document into pre-separations is straightforward but intensive. You need to provide the minimum number of registered copies of your work such that each colored area is separate from other color areas and is clearly labeled. Keep on hand an unaltered copy of the original drawing. Copy it and proceed by erasing away at the areas not desired on the overlay. After that, it is a relatively easy matter to use the selection rectangle and lasso in conjunction with Invert and Trace Edges to make the necessary black shapes. It takes a bit of getting used to, seeing color areas as black silhouettes, and having a light table to position the overlays for final check is helpful.

Figures 2 and 3 will result in similarly colored drawings. Because the fill patterns in *MacPaint* are not exact, the colors in Figure 2 will not be exactly to percentage. When using black areas, you can specify color percentages to any screen (dot) size. Normally speaking, the higher the resolution (smaller the dots) the better the product, but you'll have to tailor your screen specs to the type of paper you're going to print on. (If you have any questions, ask the printer.)

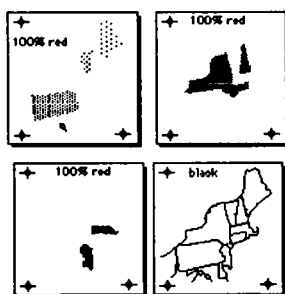


Figure 2.

Programs which remember shapes in an object (*MacDraw*, *MacDraft*, etc.) rather than a bitmap mode are much easier to work from when preparing pre-separations (see Figure 4). Complex shapes which would normally be difficult to cut around (such as country borders) can be quickly FILLED black. If you're using a complex shape consisting of a number of unattached lines (such as a *Cricket Graph* line chart), you can create a rough black-filled polygon inside the area and later fill in the edges with a black marker. Because all objects have a LINE and a FILL, it is a simple matter, by specifying the FILL black and the line around the object white, to delineate separate filled areas.

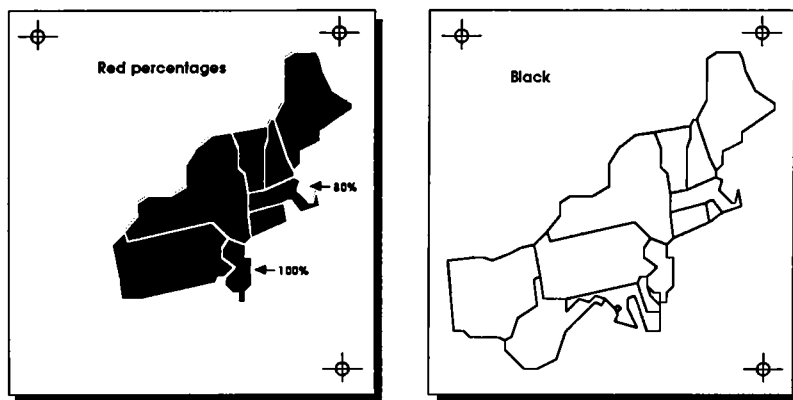


Figure 3.

The whole process would be easier if more programs allowed for layering. Some CAD-type 2D programs allow for layers, as does *4-Point* (16), *ComicWorks*, and the soon-to-be-released *SuperPaint*. With layering, one could, in a single file, register all layers, call up certain layers, inspect, and print them.

A HYPOTHETICAL RAINBOW

Needed is an application which can:

- 1.) ask one to designate colored areas:
- 2.) arrange the required (minimum) number of overlays such that no two adjacent areas overlapped
- 3.) provide for accurate registration through the overlays
- 4.) allow standardized labeling which one can place (in reverse print) in the black area itself or in a non-color area.
- 5.) provide traps. In ordinary cases, supplying masks that just meet the black line or completely cover it are adequate—the printer can (for a small price) shoot the mask up or down 1% to make sure the color covers properly. But if you're going to print on fancy kinds of paper stock, or use unusual inks, it is best to spend a bit of time making sure that the fill area extends slightly into the holding line. An overlay program could easily implement a ± 1 dot (LaserWriter) trap to accomplish this refinement.

Extra Feature: For printers who prefer separate red, yellow, and blue flaps: Arrange overlays such that areas requiring more than one color (green = blue + yellow) would appear on the appropriate overlays.

And Then . . . The application could drive a plotter which held a knife which would actually cut plastic friskets and amber overlays for use in airbrushing as well as color separation.

The LaserWriter is the printer of choice. Color separation is necessary for large color runs. An application is necessary to handshake the LaserWriter with the Professional Print Shop.

(Note: EDO Communications is promising a product called *LaserPaint* which they say will provide an environment addressing the LaserWriter, and "provide capabilities for creating full-page 4-color separation on the LaserWriter.")

SUMMARY

This does not exhaust the realm of preparing flaps. Hopefully it will give you an idea of how, with either the LaserWriter or ImageWriter, you can prepare work for large color printing runs. Two books which explain the process in more detail are: *Pocket Pal* and *Handbook of Advertising Art* (both available at good art supply stores).

Find a good printer and stick with him/her. Personal referrals are the best way to be introduced to a print shop. Talk to your printer. He/she is in the best position to advise you how to best prepare work for their presses.

OTHER HINTS & RANDOM NOTES

● *LaserWriter Prints with More Punch.*

Try using 70# enamel finish paper to get sharper black drawings. An added bonus is that, with coated stock, you can scratch away (with an Exacto knife) slight glitches which you may have overlooked, or provide a very fine scratchboard look to your drawings.

● *Security for the Mac.*

If you think your home insurance covers your computer hardware and software, check with your agent. Many companies do not include computer equipment. Does your coverage cover any kind of mishap to the machine? In transit? In your car? There are companies which provide insurance for the Mac.

● *Time in Transit*

Graphics take a lot of space on disk. If you're going to telecommunicate it (to friends, clients, or printers), make sure you pack it. *Packit* is a shareware package which you should be able to locate through your user group or BBS. Tell your clients (act as if everybody telecommunicates their work these days) about this cost-saving application—they'll appreciate it.

● *VideoWorking?*

Marc Cantor is alive and well. Hayden software isn't. Don't worry, Marc's got the rights to *VideoWorks* and is looking over a number of interested prospective publishers.

M.U.G. WRESTLING

Boston is my favorite city second only to Troy, New York! Boston has everything a person could want: the ocean, neat people, colleges, arts, and roads that seemingly bring everyone to the same intersection.

I began to drool by the time I reached Framingham.

I always looked forward to seeing my girlfriend and eating at the "No-Name" restaurant. That's their real name—"No-Name"—down on one of the wharfs overlooking the Atlantic. I swear this is the same place John Belushi and Dan Ackroyd mimicked in *Saturday Night Live*. The seafood is fresh, and you bring your own bottle to wash it all down.

But that was years ago. This time I was going back to Boston for the Mac Expo.

While the Bayside Auditorium itself was not hard to find, specific booths were. There was no traffic flow that made sense. Booths went this way and that way. Just when you thought a line of booths ended, a peek around the curtain revealed even more, or a dead end. I spent most of the day asking myself whether I had been this way already. They had a map (chuckle) and free apples (the eating kind). It would have made more sense to have grouped vendors by software or hardware types, i.e., all hard drive manufacturers together, so you could do a better job of comparing.

It was easy to spot the Apple reps. Apple must get a tremendous discount on grey cloth!

This was my second Boston Expo and the crowd didn't seem as big as last year. While most people were smiling, some of the vendors weren't as friendly as before (could be the reviews). The Expo had a distinctly businesslike flavor (last year, people were more casually dressed and glad to be there).

Suits this year.

The most enjoyable booth I stopped in was the Compu-Teach booth from New Haven, Connecticut. Compu-Teach exhibited educational software for kids. The various programs were explained to me by the educational director, 8-year old Nathan Urban. This kid was so cute I might have bought everything he had if I had my checkbook. After expertly describing his software, I jokingly asked him if he had any software for "older" kids. Without batting an eye he said sure, his stuff was good for kids all the way up to twelve! I left his booth in a very good mood.

Here are a few observations about Mac Expo: If you like making maps, Select Micro Systems (2717 Crescent Dr., Yorktown Heights, NY 10598) was demonstrating *Map-Maker*, a great mapmaking program that allows you to make maps and print them (and data) in color.

Tired of drab black or gray disks? Try C.Itoh's (385 Madison Ave., NY, NY 10017)

by Don Rittner

decorator color disks. They look good (pink to green), they work, and the price is reasonable.

T-Shirts are back in style. Many booths were offering T-shirts with their logo on them. I managed to get a *MacLightning* T-shirt for free, but I really wanted the *MORE* shirt from Living Videotext.

I felt sorry for the staff at the Addison-Wesley Publishing booth. The ridiculous tuxedo-like outfits they had to wear reminded me of the old Chesterfield cigarette commercials of the 50's.

BBS OF THE MONTH

Last month my Appleseed award went to MacQue from the San Francisco area. The Bay area wins once again.

MacCircles is a 24-hour BBS that runs on a MacXL (who said the Lisa was dead?), two external 5 meg Profiles hard drives, and *Red Ryder Host* software. It was conceived by Patricia O'Connor, a communications technician for AT&T Communications when she was living in Tucson, Arizona. MacCircles served that Mac community and its Labor groups, but when she moved to California she found there was less interest in Labor and more in software—hence the additional hard drive support.

MacCircles is free and Pat calls you personally to validate. There is E-mail, public messaging for Lisa, music, word processing, telecommunications, shareware, and Public Domain stuff. The phone number is (415) 484-4412.

You will also find Pat contributing her expertise often on GEnie's *RED RYDER* roundtable. Check out MacCircle. It's a family-style BBS!

BITS & PIECES

MacTechnics MUG, from Ann Arbor, started a humorous feature this year—*Snigmaclets* (copyrighted), defined as any word that should be found in the Mac Owner's manual or *Inside Macintosh*, but isn't. Here are a few to chuckle on:

macuum—(n) the force that sucks your disks into the new Apple double-sided drives.

swapercise—(v) to move one's arms in a back and forth manner, usually when copying disks on a 128K Mac, or using *MacWrite 4.5* with only one drive.

hyperfontic—(adj) used to describe a Mac document that contains more than three fonts, in all imaginable typestyles and sizes.

discadenza—(n) the solo your Mac drive plays when adding or deleting desk accessories from a System file.

Naturally I had to make up a couple of my own:

Macsomnia—(n) a disease suffered by Mac users, particularly those with PC Pursuit.

Macnatism—(n) the inability of a BBS Sysop to take his/her eyes away from the screen when a user logs on!

MUG OF THE MONTH

One MUG newsletter I really look forward to getting is *Mouse Droppings*. It's published by the MUG of Corvallis (Oregon).

Mouse Droppings is consistently high quality. It averages 20 pages, has great original articles, some graphics, and advertising, but you want this for the "meat"—lots of good tips for the Mac user!

Editor Phillip C. Russell (*author of this month's Reader Essay—Ed.*) writes some great stuff, and his editorial in April blasting BMUG's (Berkeley) policy of not sharing its newsletter with "the rest of us" may have been partly responsible for BMUG changing that policy.

MUG of Corvallis costs \$24 a year and includes *Mouse Droppings*. Public Domain disks are \$4 (\$5 if mailed). Their address is 520 NW Oak St., Corvallis, OR 97330.

PUBLIC DOMAIN OF THE MONTH

(You can download most of these from the networks.) Remember, pay those Shareware authors.

Counter DA. By Andrew E. Page, 3 Bushnell Dr., Lexington MA 02173. This \$3 Shareware utility instantly counts your words and characters. That's all it does, but it does it quickly.

Translator. Another DA by Andrew E. Page. This is a handy utility. It converts *MacWrite* files into text files. How many times were you ready to send a file across your modem, only to realize you didn't save it as text-only! Never worry again. This DA works fast and leaves a Txt. suffix at the end of your converted file. \$3 Shareware.

Calendar 1.1 Here's a remake of the old *Calendar DA*. Written by David Oster (Mosaic Codes, Suite 1036, 2000 Center St., Berkeley, CA 94704). Shareware for \$5. *Calendar* shows the month with a text box so you can store notes and appointments. You can store info for months in advance.

GAMES

I normally don't have time to play games, but there are a few Shareware and Freewares out there that deserve mention.

Billiard Parlour. R. Crandall, S. Gillespie, and S. Lew, using the Rascal Development System (Metaresearch, Inc., 1100 SE Woodward, Portland, OR 97202), have created a

great game of billiards ("pool" to the rest of us). I made (and lost) lots of money in my younger days hustling pool in Troy, but this game won't lose you money—just sleep. It's addictive!

You get a ceiling view of the table. Once you "rack" up, you aim at the balls by dragging your mouse (holding the button down) aligning the "cue," then pulling back on the stick (mouse) and letting go. The effects are real, and you can play seven different games of billiards (yes, even eightball). The game is free.

Dungeon of Doom. Version 4. By John Raymonds (Dan Ferguson did the Screen Art and John Morgan did the Monster Icons). This is Shareware for \$25, and worth every penny! Each of your characters can be modified as to strength, intelligence, wisdom, and more. You move your character through a dungeon, picking up useful items, such as knives, swords, potions, and along the way meeting monsters, bats, and the like, which you must kill or be killed. Different levels and skills are attained with practice. Guaranteed to keep you up at night.

Breakout games. Remember *Breakout*? Now you can enjoy the game under some different guises. *Bricks*, by Roger I. Gould (1984), was one of the first and free. There's *Brickels* by Ken Winograd (2039 Country Club Dr., Manchester, NH 03102), a Shareware costing \$5. A neat little DA called *Knockout* was written by Andy Stadler (Shareware \$5, Box 603, Occidental College, 1600 Camous Rd., Los Angeles, CA 90041). The

latest addition is *Silicon Volleyball* by R. Malissa (P.O. Box 1279, Dublin, PA 18917). This author asks for a \$5 contribution. All are fun, but my personal favorite is the *Knockout DA*.

PCS Player. By Bob Upshaw and Bill Budge. This pinball player allows you to play any games created from the *Pinball Construction Set* (call Electronic Arts at (800) 245-4525). The player is free and the sounds are realistic. If you grew up playing pinball, you'll love it. It certainly doesn't Tilt!

Although I promised last month I would discuss free and shareware terminal programs, it's going to have to wait till next month.

WHAT'S HOT—FOR USER GROUPS

HOT

Red Ryder Host. By Scott Watson (FreeSoft Co). One of the best services a MUG can provide for its members is a Bulletin Board System (BBS). BBS's can serve as a place for members to pick up news, events, software (PD and Shareware), technical help, and just gab.

Scott Watson, of Red Ryder fame, has written a BBS program called *Red Ryder Host*. If you're a registered Red Ryder owner (the terminal program), the *Host* program is free.

RR Host consists of an "engine" and four editors (message, file, configuration, menu) which allow you to custom build your BBS. 1.01 is the current version. As a registered

Host, you can join Scott's roundtable section on GEnie for free. Here you will find many BBS utilities and the best assortment of dedicated Host Sysops ready to give you a hand whether you're a beginner or expert. It's a family!

Scott is constantly improving it (like Red Ryder), but what makes this a bargain, besides getting two excellent programs for the price of one, is the ability to personally design the BBS and instill it with its own personality. Thanks, Scott!

HOT

Apple Tech Notes. Apple Computer is generously offering all user groups the opportunity to receive a free one-year subscription to *Macintosh Technical Notes*. All you must do is give Apple a free one-year subscription to your newsletter. Sounds fair! Put Scott Knaster (Apple Computer, Inc., 20525 Mariani Ave., MS 3-T, Cupertino, CA 95014) on your list. You can also purchase them for \$25. Hard copy or disk copy available. If you want to order last year's entire *1985 Tech Notes*, it costs \$45. Same address, but send it attention of "Apple Computer Mailing Facility."

NOT

Apple still requires user groups or bulletin boards to pay fees to post their stuff (system software, *Switcher*, *Inside Macintosh* (Vol. 4), and Mac software supplement). If you posted everything it would cost your Sysop \$250. It doesn't seem fair. CompuServe gets that money back with a couple of downloads, but most user groups (or Sysops) can't afford to pay that fee.

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but the floppies are slow and too small.

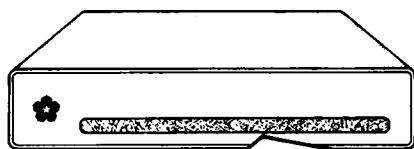
We didn't want to spend \$1200 for a hard disk drive. We didn't even want to spend \$800. So we designed one ourselves with every feature on our wish list. Engineering said, "No room for surge protection; extra outlets aren't worth it!" Marketing said, "Forget technical support, too expensive." Accounting said, "There's no such thing as free shipping, and you gotta charge extra for credit cards."

The little kid in us was determined.

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Circle 226 on Reader Service Information card

I tell you what, Apple, I'll pay you \$5 a disk and you will have the *privilege* of distributing your software on my BBS. I've already paid many times over for system updates!

HOT

Mac Mentor Program, from Chang Labs, makers of the *Rags to Riches* accounting software. Chang has worked out an innovative deal. Your local dealer will put on a demonstration of *Rags to Riches*. If you buy the software after the demonstration you can get the General Accounting 3-Pak (General ledger, Accounts Receivables, Accounts Payable) for \$150 (normally \$499.50), or the Professional 3-Pak (GL/AP/ Professional Billing) for \$200 (retail \$649.50).

The catch is, if you buy at the demonstration then you must agree to be a local referral source for the dealer when a potential client wants to check out RTR. If you want to be a Mac Mentor, you actually become a consultant for the vendor (conditions negotiable). Chang Labs intends to update Mac Mentors with usage notes and new product info immediately when published.

It's a clever marketing tool for Chang and everyone wins. You receive an excellent accounting package for a reasonable price. Vendors get a list of satisfied customers to help sell the product, and Chang sells lots of software. If your area doesn't have a vendor that sells *Rags to Riches*, call Len Klempnauer at 1-800-972-8800.

WHAT'S HOT—FOR USERS

PC Pursuit—Free User Group sign-ups. Telenet Communications Corporation (U.S. Sprint) has given what every telecommunicator dreams of—lots of phone time for little money. For \$25 a month (that's right, a month!), PC Pursuit allows you to call anywhere in the United States during the hours of 6 PM to 7 AM, Mon-Thurs, and 6PM Friday to 7AM Monday and holidays.

PC Pursuit is offering members of User Groups free sign-up (a savings of \$25). PC Pursuit will offer members a waiver of the fee if it is processed through the MUG. Have your MUG President or officer contact Cliff Cummings, Product Manager, at 1-800-368-4215. Remember, this free sign-up must come through a MUG.

NOT

Vendors of Public Domain. I have mixed feelings about booths at Mac Expo selling public domain software—not original software. I realize this might be conceived as a service to those people who do not belong to user groups, but I couldn't help feeling that if they were selling my programs for profit I would be fuming.

HOT

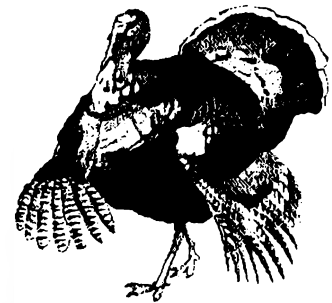
Cricket Graph, by Cricket Software, 3508 Market St., Philadelphia, PA 19104. Here's the graph plotting program you've been waiting for. CG allows you to make 12 different types

of graphs and prints in color. It's compatible with *MacDraw*, *Switcher*, *HFS*, *LaserWriters*, and plotters. One great feature is the ability to take a graph and stretch it to fill a whole page, or put several graphs on one page. CG claims to support 409 columns up to 2700 rows per column, and accepts info from leading databases (*Omnis3*, *OverVue*), spreadsheets (*Excel*, *Multiplan*), and word processing applications (*Word* and *MacWrite*).

NOT

Shareware Misusers. While preparing a report on Shareware, it has come to my attention that people do not pay Shareware authors, yet continue to use the products. One author recently asked, on a major communications network, why it was that, while 250 people downloaded his product, only two people had paid for it? It appears that there is a better percentage of returns in the IBM Shareware market. Shall we let IBM users retain that distinction unchallenged????

Have a Happy Thanksgiving!



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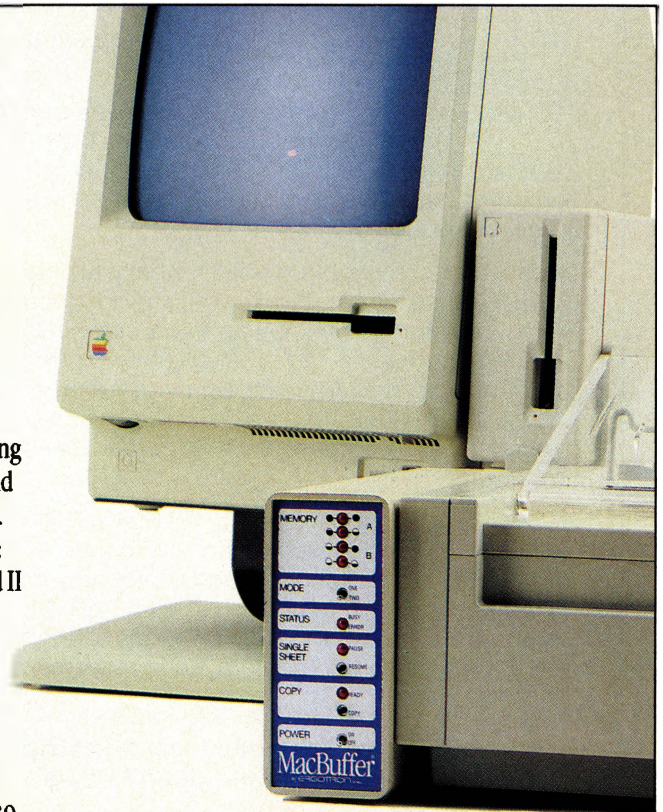
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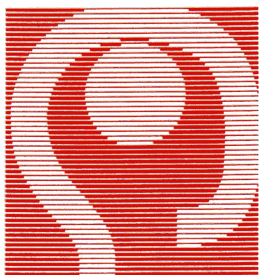
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By making it easy to construct a knowledge base—consisting of facts, rules and examples—in the Logic Worksheet you can use deductive and inductive inferencing techniques to diagnose and advise, plan or trouble-shoot.

Some typical applications include:

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- A real estate developer used a MacSMARTS program to make certain no considerations were missed in the decision to build a new office complex.
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- A marketing director will use a MacSMARTS program to configure the best components to meet a customer's requirements.

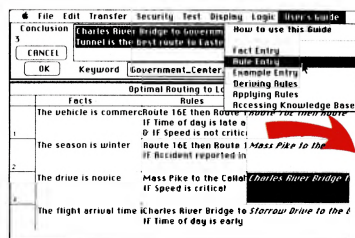


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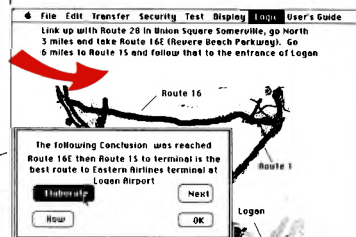
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CODs and Purchase Orders WILL NOT be accepted. **For the 512K Mac, MacXL and Macintosh Plus.**

by Larry Pina

From previous consumer electronics experience in the American marketplace, I can state with certainty that the sales potential of innovative products like the Macintosh is 20 MILLION units. Apple is now moving 50 THOUSAND Macs per month. By the end of the year there should be an installed base of close to ONE MILLION units. Some analysts are cheering—I, however, am concerned. At this rate, it will take 40 years before the other 19 MILLION have all been sold. The computer itself is fine . . . so what's holding unit sales back?

MARKETING MADNESS

Every small business, every church and civic group manages a mailing list, and every day more and more organizations think about buying a microcomputer just to address envelopes. People expect computers to print mailing labels. Macintosh, as bundled with *MacWrite* did not perform this task. It was unfortunate. So many Macs were sold together with *MacWrite* and *MacPaint* that people began to judge the computer in terms of what *MacWrite* and *MacPaint* could do. If *MacWrite* couldn't do labels, they reasoned, the Macintosh was not suited to the task. Although unjustified, if it happened often enough, it may have depressed sales. The irony is that *MacWrite* can easily handle labels, and it wouldn't have cost Apple anything to have included this feature from the beginning.

Macintosh page sizes are stored in an editable resource known as the PREC (pronounced "pea wreck") File, which is short for Printer Record. If you have a working knowledge of hexadecimal numbering (every programmer does) you simply run *ResEdit* to add, delete, and customize page sizes at will. Business customers not using International Fanfold or A4 Letters might substitute #10 envelopes and 1" mailing labels instead. The problem is, most business customers don't understand hexadecimal numbering. Sales managers who expect their customers to learn esoteric programming procedures in order to perform everyday printing tasks are frustrating the market (read holding back sales). When a \$3,000 micro can do International Fanfold and A4 Letters, but can't perform bread-and-butter mailing services, something has clearly gone wrong. "Let them eat cake," may be the norm in computer marketing, but it's an insider approach. It should have gone out with Marie Antoinette.

PAGE SETUP CUSTOMIZER

Fortunately, there's a Public Domain Page Setup Utility called *Page Setup Customizer*

(Fig. 1) that makes fixing the PREC File as easy as adding a font or DA to the System file. If you can run the *Font/DA Mover*, you can run *Page Setup Customizer*. The program comes with excellent on-line help. You don't even have to know what hexadecimal means in order to use it. Now you can do mailing labels and envelopes with *MacWrite*. With *FileMaker 1.0*, you can print Bills of Lading, Disk Labels, Rotary File Cards, Shipping Labels—everyday tasks that weren't possible before. To fully explore the possibilities, you need to send for a "free" computer forms catalog. Published by the Drawing Board and New England Business Service (NEBS), these catalogs are idea books for your Macintosh. Inside they list hundreds of pre-printed, pin-feed forms and labels. Order the stationery and/or forms you want, then run *PSC* to set the page sizes necessary to print on them. It's that simple. Why can't you print data on these forms without *PSC*? You can, but here's what happens.

The smallest page size normally available on a standard ImageWriter driver is 8.5" × 11." Using 12 point Geneva and the 6 lines/inch option on *MacWrite 4.5's* ruler, or 9 point Geneva with or without the 6 lines/inch option (assuming no header and footer and no breaks between pages), you can fit exactly 66 lines (11 one-inch labels) on a single page. Problems:

1.) *MacWrite* doesn't count lines. Without visible label breaks you can easily lose your place before you're halfway down the page (Fig. 2).

2.) Since you have to position the label stock 1/2" above the type head (just under the paper bail), the ImageWriter always executes an initial form feed—unless you remember to leave the first record blank. With the first label 1/2" above the type head, it's actually outside the printing range. Rather than skip the first record, the programmer chose to have the software execute a formfeed and start printing with a fresh page so that all the records could be printed. With 8.5" × 11" pages, this wastes the first 11 labels and, in their high speed trek through the printer, they've been known to jam and derail, causing considerable damage. For that reason, anyone printing mailing labels with an original ImageWriter (or even considering it) ought to keep a copy of the July, 1985 *MACazine* handy. "Sticky Situation" by Jon M. Olson tells just what to do. Without it, you'll really be stuck! (Back issues \$3.75 each. For ordering info., see Figure 6).

3.) There's also a chance of jamming at the end of the print run. Let's say you've typed 25 statements and need to run off 25 labels.

V is ÷ (because we have to keep the first label blank), or 21 records printed on the first two 8.5" × 11" pages. The next 4 labels are printed on the third page, requiring 7 blanks (P is minus) to be form fed over the paper bail. These also have to be wasted. NEVER, REPEAT, NEVER feed unused labels backwards through the printer (not unless you relish "Sticky Situations"). Combined with the 11 labels typically wasted up front (because no one figures they ought to leave the first label blank), 7 + 11 equals 18 labels wasted, just to print 25!

All of the above is easily overcome by defining new page sizes with *Page Setup Customizer* (Fig. 3). Measure the stock carefully from perforation to perforation, and adjust the height and width accordingly. For example, 3.5" × 15/16" mailing labels generally require a 3.5" × 1" page size (15/16" for the label itself and 1/16 for the perforation).

The new Printer Record can then be installed directly into an ImageWriter driver or into an application (Fig. 4). In the latter case, the custom sizes would be available only from within the application and would not be available to your other software.

COMPATIBILITY PROBLEMS

Some programs have trouble with custom page sizes. *MacWrite 4.5* works, except that with a 3.5" × 1" label size the first three page breaks are always invisible. That means even after you've defined the 1" page size and chosen it from *MacWrite's* Page Setup dialog box, you're not going to see 1" page breaks until you've entered at least three records into the mailing list. This makes getting started very confusing. Here's what to do. Assuming four-line addresses entered onto 1" pages where it's possible to type 6 lines per inch (as in Figure 2), begin by entering: blank line, code # . . . , name, address, city/state/zip, blank line; blank line, code # . . . , name, address, city/state/zip, blank line; blank line, code #, name, address, city/state/zip, blank line, and right about here (Page 4) you should start to see page breaks. Sometimes, though, even these turn invisible. In that case, you have to refresh the breaks by scrolling the screen. In no case do you actually lose the page breaks—they're always there and nothing ever happens to the data. It's just an annoyance.

Another way to work around it is to begin by inserting three blank records. The easiest way is to choose the "Insert Page Break" command from under the Format menu three times, then enter your actual records starting on Page Four. If you use this method, remember to print the file "From (Page) 4." Otherwise, the three blank labels on pages 1, 2, and 3 will run through the printer unnecessarily.

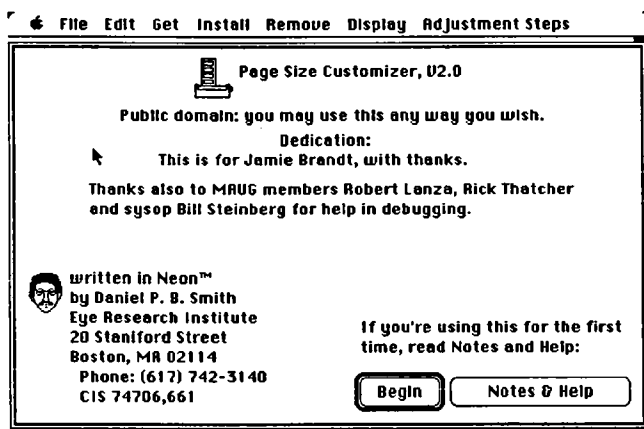


Figure 1: Startup screen from Daniel P. B. Smith's *Page Setup Customizer*.

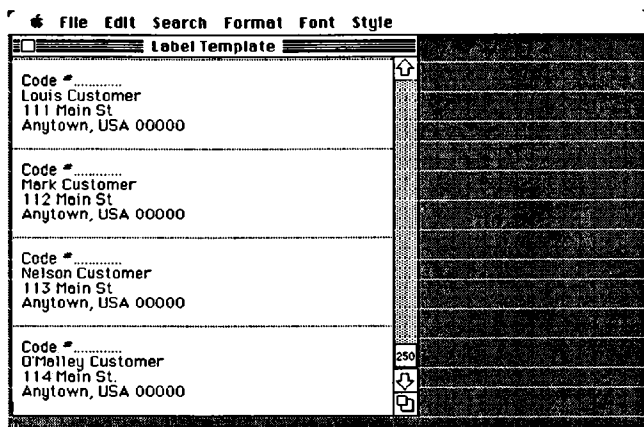


Figure 2: *MacWrite 4.5* can handle 250 records per file. Visible label breaks make data entry easy.

If a particular program won't work at all with small pages, try even multiples of the size. *FileMaker 1.0*, for example, rejects the 1" size but works perfectly with 2". Printing two 15/16" labels per page is considerably easier and wastes fewer labels than 11 per page. Another *FileMaker 1.0* option would be to buy 4" × 1-15/16" labels and print one per page. (You can get this size one-across from Drawing Board). Programs which come with built-in page customizing utilities (*FileMaker Plus*, *Microsoft Works*, *Executive Office*) should work perfectly with any size.

SETTING THE PIN-FEEDER WIDTH

To print properly on the label stock you've chosen, you'll need to set the spacing of the printer sprockets. This procedure is covered in the *Imagewriter User's Manual* on page 16, and in the *ImageWriter II User's Manual* on page 51. If you're not familiar with how to do this, it'll be easier to follow along if you open a manual. The two red rings on the roller shaft (called the paper bail in the *ImageWriter II* manual) indicate the maximum travel of the type head. If you align the left edge of the label stock (the perforation) with the first red line on the roller shaft (alias paper bail, *ImageWriter II*) and print the labels using *Mac-*

Write, impact will start one inch from the left edge of the label. That's because *MacWrite's* ruler does not allow you to set less than a 1" left margin. To compensate, you might carefully measure 1/2" to the right of the red line and, using a felt marker, make another mark. By aligning with this mark, printing will start 1/2" closer to the perforation. With programs like *FileMaker 1.0* and *FileMaker Plus*, which allow you to set zero left margins, you should align the perforation as far to the left of the red line as possible, or exactly on the red line if you set the 1/2" margin or whatever size you want while in the layout mode (Fig. 5). Since this is confusing and not covered in any of the documentation, it's wise to experiment with scrap paper before actually loading any label stock.

ADJUSTING FOR PAPER THICKNESS

If you're printing directly to pin-feed envelopes (Fig. 6), you need to adjust the paper thickness lever for a two-sheet thickness. For mailing labels, you need to adjust for a three-sheet thickness. This procedure is illustrated on page 21 in the *Imagewriter manual*, and in much greater detail on page 50 in the *ImageWriter II manual*. The lever itself is lo-

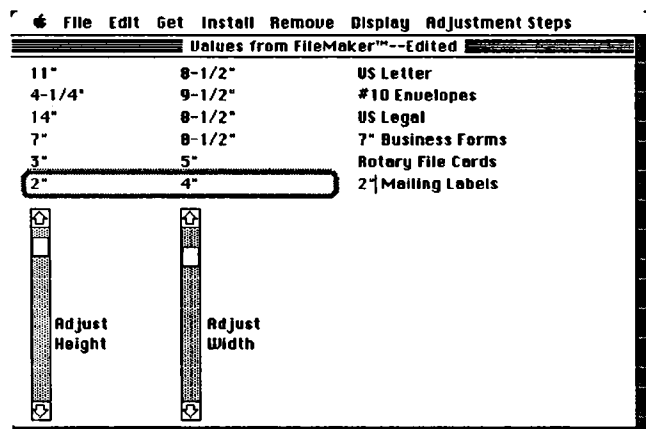


Figure 3: With *PSC*, mailing label madness is easily overcome by defining new page sizes.

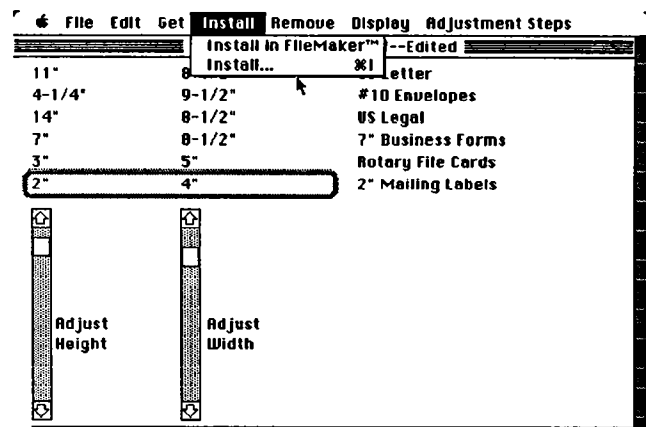


Figure 4: *PSC's* installation options.

cated inside the printer on the right side, near the platen knob. For easy access, remove the carrier cover. The knob itself is triangular shaped, about an inch long, and might be either white, black, or orange plastic.

PRINTING

Printing is slowest in Standard and High Quality, but the results, especially if you include a picture from Cairo or Taliesin fonts, are outstanding. To print up large lists quickly, use the Monaco font and print in Draft Quality. Draft bypasses the System fonts and prints with the *Imagewriter's* built-in character set, with spacing identical to Monaco. Production is fast and the results look fine, just like the labels arriving on your mail every day.

LIMITATIONS

MacWrite is appropriate for maintaining informal mailing lists, the kind often associated with newsletter publishing by church and civic groups. You can even enter expiration dates and other membership information on special code # lines (refer to Fig. 2). What *MacWrite* can't do is sort the labels. This presents a problem when managing paid sub-

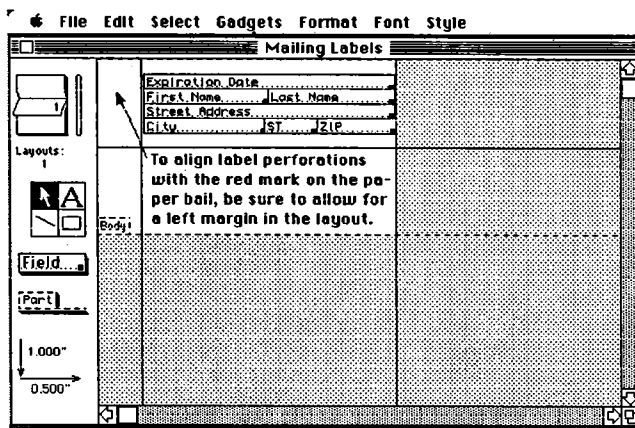


Figure 5: With FileMaker you either have to align the label perforation to the left of the red line on the paper bail, or allow for a left margin in the layout.

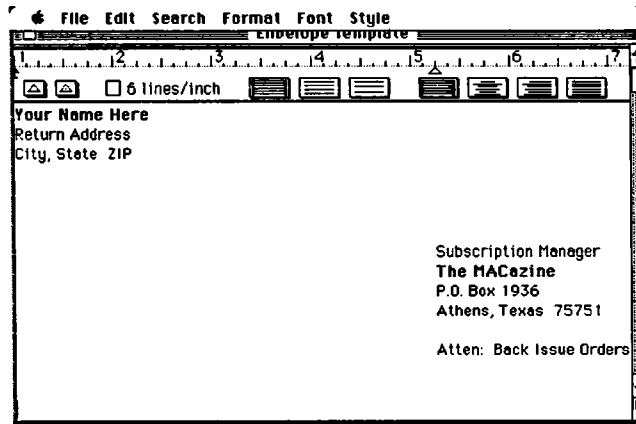


Figure 6. To print #10 envelopes, define a 9.5" x 4.25" page size with *Page Setup Customizer*, and set the paper thickness lever for a low sheet thickness. To send for Jon Olson's excellent article titled "Sticky Situations," write July, 1985 across the face of the envelope and enclose your order with \$3.75.

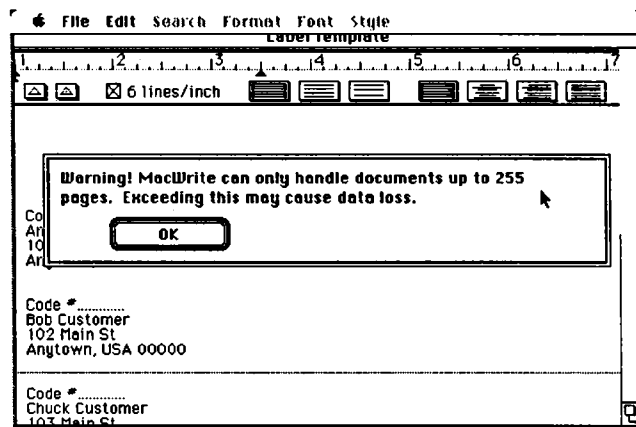


Figure 7.

scription lists. To notify readers of subscriptions that are about to elapse, you'll have to insert a notice in every issue asking them to check their own address labels, and each month you have to search the list to deter-

mine which subscriptions have actually run out. One way around this is to create a separate mailing list for each month of the year. To chain-print all twelve from the Finder (for monthly issues), just hold down the Shift Key as you select them, then choose Print from the

Finder's File menu. For mailing out renewal notices, print the month in question and mail out a form letter 60 to 90 days before the actual expiration date.

File size is limited to 255 pages (Fig. 7), but you can have more than one file. Each formatted address file takes up roughly 70K, which limits you to five files per 400K disk. Assuming at least a 512K machine with the System, MiniFinder, and Imagewriter driver in RAM, 1,000 names and addresses (stored in four 70K files of 250 records each) can share a MacWrite disk. If you have an external 400K drive, each data disk can hold 1,250 additional names and addresses. This means you can access over 2,000 records on an ordinary, two drive, 512K machine without having to swap disks. On 128K machines, file size is limited to 60 records, but you can work around that by setting up even more files.

CONCLUSION

MacWrite is not the preferred mailing label program—not by any means. But with the addition of custom page sizes, it is serviceable. Pastors might want to pick up a used 128K just for handling mailings to the congregation. Retailers might want one, strictly for conducting direct-mail advertising. When *MacWrite* no longer meets their needs, more powerful software certainly will.

This means even more direct mailings, resulting in more sales, requiring more computers, and so on, and so on, and so on. Yet, I've never seen the Macintosh advertised as a mail managing tool. Could everyone have slept through Marketing 101?

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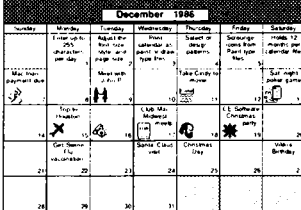
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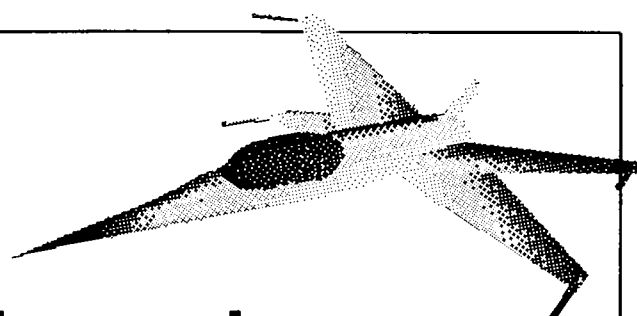


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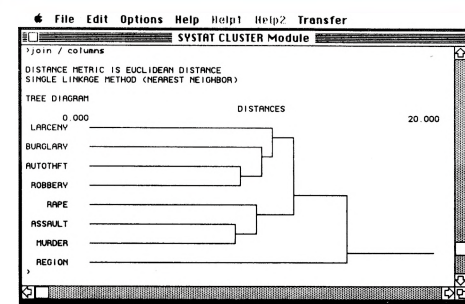
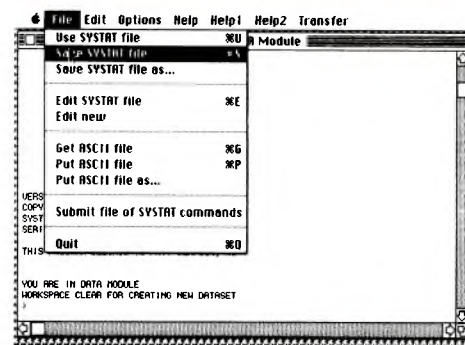
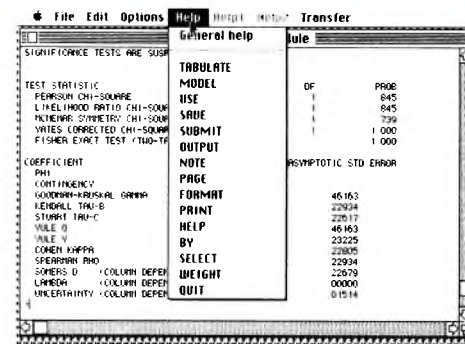
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PostScript

PART 1 OF 3

by Henry Bortman

Suppose you had a printing press, and you only had black ink to work with. It's easy to imagine how you would get the press to print a high-contrast image that contained only areas of solid black or solid white. You'd make a plate for the press that would put ink where you wanted the image black, and nothing where you wanted it white.

But what if you wanted gray? Or fifteen different shades of gray? You'd have to do a separate press run for each shade. Very time-consuming and very expensive. This is precisely the problem that had to be solved for printers to be able to produce realistic-looking images—images that appeared to contain a full range of gray scale values—using only black ink. The solution is a process called halftone screening, which makes a photograph printable by breaking the image up into thousands of tiny dots.

A similar problem exists for "raster scan" (digital output) devices like the Apple LaserWriter™. I used the LaserWriter to print some white letters dropped out of a standard 30% gray dot screen. I chose 30% because it's a shade of gray that gives you good contrast for both dropping out white letters and overprinting black letters. But it's only fair to point out that this technique pushes the LaserWriter to the limits of its abilities.

I was highly impressed. The results obtainable on the LaserWriter clearly surpass anything previously available on printers in this price range. Its ability to render gray-filled areas leaves even the best dot matrix printers far behind. But having worked in the graphic arts, I couldn't resist putting the output under bright light and scrutinizing it closely. When I did, I saw that the individual cells in the background were distinguishable with the

naked eye, and that the edges of the letters were pretty rough (see Figure 1). Granted, this was a difficult test for the LaserWriter. It's not easy to achieve good results when dropping white letters out of a low-percentage gray under any circumstances. So I began trying to figure out why it looked the way it did, and how it could be improved.

In this series, I'll share with you what I learned trying to answer these questions. The first part will discuss the general concepts behind photographic and digital halftoning, and will begin to explain how halftoning is accomplished by PostScript™, the page description language created by Adobe Systems and used by the Apple LaserWriter. I'll focus on the relationship between how the dots are clustered ("screen frequency") and how many different shades of gray you can get the LaserWriter to print ("gray scale").

In future articles, I'll go into more detail about the PostScript halftoning command "setscreen," including the effects of changing the "screen angle" and "spot function." I'll give suggestions on how to set up the halftone screen to get the most out of the Apple LaserWriter for various applications. And I'll also show you what can be done with higher-resolution PostScript output devices, such as the Allied Linotronic 100™.

There are two books that anyone planning to write PostScript programs should get hold of before beginning: *PostScript Reference Manual* and *PostScript Tutorial and Cookbook*, both written by Adobe Systems and published by Addison-Wesley. The former is a full description of how the various elements of the language function; the latter provides an extremely useful set of well-commented sample programs. You might have to hunt a little for them. Try a technical bookstore or college campus bookstore that has a large

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computer section. If they don't have them, they'll be able to order them. Now on to the topic at hand.



Figure 1. White text "dropped out" of a 30% gray screen, using the standard Apple LaserWriter™ halftone screen settings. Notice that individual background dots are visible, and that the edges of the letters are a little rough.

HALFTONING THE OLD WAY

A normal black-and-white photograph is referred to in the graphic arts terminology as a continuous-tone photograph. It consists of a single unbroken image which contains a full range of gray values from white to black. As we have said, a printing press cannot print a picture like that. It can only print black, or nothing (which on white paper comes out white).

Various shades of gray have to be simulated by halftone screening. A halftone image is a photograph of a photograph. To produce it, a special halftone screen is placed over an original continuous-tone photograph, and a picture is taken, through the screen, of the original. The result is called a screened photo, or, simply, a halftone.

There are many different types of halftone screens, but for simplicity we will refer to the most common one, a dot screen. Screening a picture breaks it up into thousands of tiny dots per square inch. The dots vary in size. Where they are smaller, the halftone appears light gray or white; where they are bigger it appears dark gray or black. This gray scale is specified in percentages. White (no dot) is 0%; black (maximum size dots with no space between them) is 100%.

Every photograph you see printed in a book or magazine has been screened. To convince yourself, take a newspaper and look closely at one of the photographs (use a black and white photo)— you will be able to see the dots. If you look at a magazine photo, it will be harder, because the dots are smaller and closer together. You may need a magnifying glass to see the dot structure. Figure 2 shows a magnified view of a screened photograph.

Halftone dots are laid out in a square grid. The number of lines of dots per inch in a screened photograph (in both the horizontal and vertical directions) is referred to as its resolution, or screen frequency. The higher the resolution, the smoother the apparent grays, and the more realistic-looking the resulting image. Newspaper photos are typically screened at 85 lines per inch, magazine photos at 133. In photographic halftoning, no matter what the screen frequency, since each dot can be any size from zero to maximum, an infinitely-variable range of gray values can be obtained. (A "maximum" size dot is one that has filled up all the space between itself and the four dots around it. For higher screen

frequencies the maximum size dot will be smaller than for lower frequencies.)

DIGITAL HALFTONING

You have probably heard that an Apple LaserWriter is capable of producing images with a resolution of 300 dpi (dots per inch). Does this mean that it can produce the equivalent of a photographic halftone with a screen frequency of 300 lines? Unfortunately not.

While photographic halftoning has to simulate grays by breaking up an image into dots of various sizes, raster-scan (digital) devices can only produce one size dot. These dots are called pixels (picture elements). A raster-scan device (such as an Apple LaserWriter) has to perform a second level of simulation—it has to simulate photographic halftone dots. It does this by treating a group of pixels as the equivalent of a single halftone dot. This cluster of pixels is called a "halftone cell."

Now that we have covered some background, let's look at how the LaserWriter does it. Digital imaging of continuous-tone photographs is beyond the scope of this article. We will concentrate instead on how the LaserWriter fills an area with a single shade of gray.



Figure 2. A magnification of a standard photographic halftone, showing the individual halftone dots. The variations in dot size create the illusion of different shades of gray.

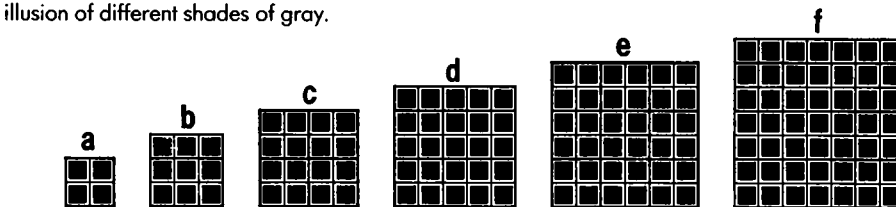


Figure 3. A representation of various sized square halftone cells, each with a different number of pixels. (a) 2×2 ; (b) 3×3 ; (c) 4×4 ; (d) 5×5 ; (e) 6×6 ; (f) 7×7 . In actuality, the pixels overlap.

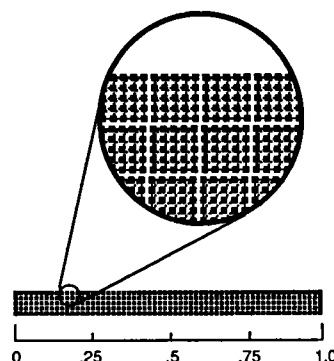


Figure 4. A representation of the 60×5 cells in one inch of the LaserWriter's™ output grid. The enlarged portion shows the individual pixels within the cells.

APPLE LASERWRITER HALFTONING

Figure 3 shows several different halftone cells, each one a square block of pixels. They vary in size from 2×2 (4 pixels) to 7×7 (49 pixels). Let's look at how these various-sized cells affect the output of the LaserWriter.

We will start with the 25-pixel cell (Figure 3d), because it is closest to the Apple LaserWriter's standard setting. Imagine a one-inch-square grid, 300 pixels per inch in both the vertical and horizontal directions. This is the actual grid of output dots that an Apple LaserWriter has to work with. (Of course, the Apple LaserWriter grid is more than one inch square.) Now, imagine a row of 5×5 pixel squares laid down side by side along one edge of your 300×300 grid. You can fit exactly 60 cells (see Figure 4). And that is precisely the default frequency of the Apple LaserWriter. Frequency, then, is the number of cells per inch, measured along the horizontal (or vertical) axis of the halftone grid.

Now that we know the frequency of the Apple LaserWriter default screen, how do we get some grays? We turn the pixels in the halftone cells on or off. But remember, we said that in photographic halftoning the dots could be any size up to their maximum, re-

frequency: 43
pixels: 49

Figure 5. Each gray scale shown here corresponds to the cell with the same letter represented in Figure 3. The entire gray scale is shown for each cell. Notice the trade-off between the number of different shades of gray available and the smoothness of the filled area.

sulting in an infinitely-variable gray scale. Not so in digital halftoning—the dots are all the same size, clustered in cells. As a result, we can't get an infinite gray scale with digital halftoning. The number of gray scale levels available is limited to the number of pixels in a cell, plus 1. For example, in our 5x5 cell, we can get exactly 26 different gray levels. Since we have 26 gray levels, from 0% to 100%, each gray scale increment is going to be 4%.

USING THE POSTSCRIPT OPERATOR "SETGRAY"

The PostScript operator "setgray" is used to set the gray level of the Apple LaserWriter's output. Setgray takes as its argument a number between 0 and 1. Black on the gray scale, 100%, is 0 to setgray. White on the gray scale, 0%, is 1 to setgray. If you are used to the percentage scale, you simply have to divide by 100 and subtract from one.

Suppose we want to fill an area with a 20% gray screen. The PostScript instruction:

.8 setgray

will do the job. It will tell the Apple LaserWriter to turn on 20% and whiten 80% of the pixels in each halftone cell. This means that of the 25 available pixels, exactly five will get printed.

But suppose we want 19% gray. Simple, right? The PostScript instruction:

.81 setgray

should work fine. The Apple LaserWriter will whiten 81% of the pixels. But 81% of 25 is 4.75. How many pixels is the LaserWriter going to print? Five. Why? Because digital imaging is constrained to operate in the realm of integers. A pixel can only be white or black.

It can't be gray, and it can't vary in size. You can't get 19% gray with a 25-pixel cell.

Take a look at Figure 5d. It shows all 26 of the available gray levels for a screen frequency of 60 (which results in a 25-pixel cell). A reasonable assortment—but notice that you can see the individual cells (which look like dots, but are really clumps of dots).

Let's look at some of the other cells from Figure 3, to see if we can get a smoother-looking gray. We'll start with the 7x7 cell (Figure 3f). Now we have 49 pixels, which give us 50 gray levels in roughly 2% increments. As you can see from comparing Figures 5a-f, only when we get up to the larger cells (more pixels) does the human eye become unable to distinguish well-defined breaks between different gray scale values. (If what you see does not confirm this, it is because something was lost in the printing process.) But look at 5f again. The screen frequency has dropped to approximately 43! The individual cells stand out in bold relief. If we are trying to achieve a smooth, even gray, we're getting further from our goal, not closer.

So let's go the other way and check out the 2x2 pixel cell (Figure 3a), and its corresponding gray scale in Figure 5a. Now we have a frequency of 150 lines per inch (300/2). We have matched the resolution of a *Newsweek* photograph. The grays have a smooth, even look to them (if they printed properly), almost as if they were done with a watercolor brush. We can't make out individual cells at all. This is exactly what we want for producing solid areas of gray. But we are down to a measly five gray levels (2x2 plus 1). That's a 25% jump in the gray scale for each additional pixel printed per cell. What if you want 35% gray? You are

out of luck. You have to settle for 25% or 50%.

Conclusion: there is a trade-off between screen frequency and the number of gray scale values available. The higher the frequency, the fewer gray scale values, and vice versa. The Apple LaserWriter, with its 300 dpi resolution, can go a long way, but it has its limitations. You can't really get both a good gray scale and magazine-quality resolution. For that you have to go to a higher-resolution (and, of course, more expensive) output device. Fortunately, the PostScript language allows us to do precisely that, without making any changes to our original document. More on this in another installment.

We have said that it is possible to vary the screen frequency and we have shown some of the effects, but we haven't really talked about how to do it. This will be the topic next time. Part Two will also explain what happens when you rotate the halftone screen. In the final installment, I will give you some tips on which settings are best for different applications and discuss how to modify the screen to achieve different screen effects; for example, a line screen instead of a dot screen.

In the meantime, Listing 1 is a PostScript program for those of you who want to try altering the screen frequency and gray level values. It will print 10 strips of gray at the screen frequency you specify. You can also specify the initial gray value, and the desired gray scale increment from strip to strip. Note that the gray scale percentages you request will not always be exactly what you get. The program will print out the percentages you asked for next to each strip. See if you can figure out what you are actually getting.

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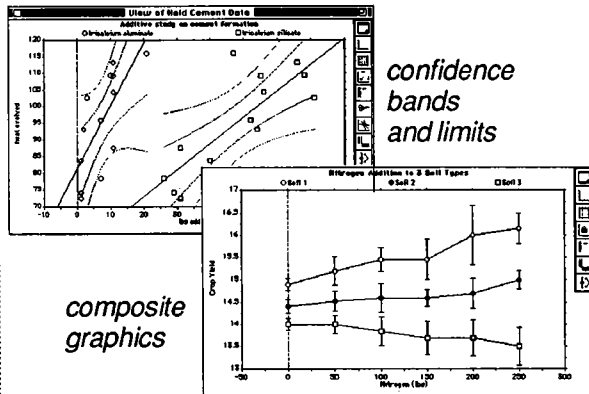
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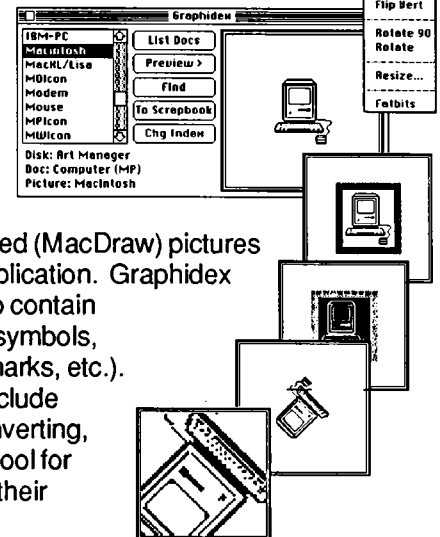
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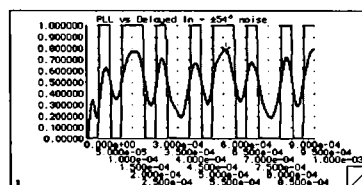


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LISTING 1

```
% This program prints a page of 10 gray strips.
% You can set the screen frequency by altering the number
%       on the line below that begins "/frequency".
% You can also set the desired gray-scale percentage for the first strip
%       by altering the number on the line that begins "/firstgray"
%       and the increment in gray-scale percentage from strip to strip
%       by altering the number on the line that begins "/increment"
% The default settings are for a screen frequency of 60
%       and gray scale strips from 10% to 100% in 10% increments.
```

```
%—— SCREEN-ALTERING VARIABLES FOR YOU TO CHANGE
```

```
/frequency 60 def
/firstgray 10 def
/increment 10 def
```

```
% —— VARIABLE AND PROCEDURE DEFINITIONS
```

```
/inch { 72 mul } def
/xdif { exch def } def
/st 80 string def
/helvbold /Helvetica-Bold findfont def
/getfont { scalefont setfont } def
/shownum { 12 string cvs show } def
```

```
/pctToGray % converts gray scale % (0-100) to setgray value (1-0)
{ 100 exch sub 100 div } def
```

```
/setUpScreen % stores spot function in p, sets new frequency
{ currentscreen 3 -1 roll pop frequency 3 1 roll setscreen } def
```

```
/setZeroAngle % sets the screen angle to 0, which is not the default.
{ currentscreen 2 -1 roll pop 0 2 1 roll setscreen } def
```

```
/drawStrip % expects current point defined - remains defined on exit
{ 6.5 inch 0 rlineto 0 -.5 inch rlineto -.6.5 inch 0 rlineto closepath
  gsave setUpScreen graylevel pctToGray setgray fill grestore
% restore graphics state
} def
```

```
/showGray % prints the gray scale percentage for the strip just drawn
{ helvbold 10 getfont graylevel shownum (%) show } def
```

```
% —— BEGIN MAIN PROGRAM
```

```
/graylevel firstgray def
/finalgray firstgray increment 9 mul add def
setZeroAngle
.5 inch .5 inch translate 0 9 inch moveto
helvbold 24 getfont
(Frequency: ) show frequency shownum
0 8 inch translate 0 0 moveto
firstgray increment finalgray
{ /graylevel xdf currentpoint drawStrip newpath moveto
  % restore previously saved currentpoint
  6.6 inch -.5 inch rmoveto showGray
  0 -.75 inch moveto currentpoint translate
} for
showpage
```

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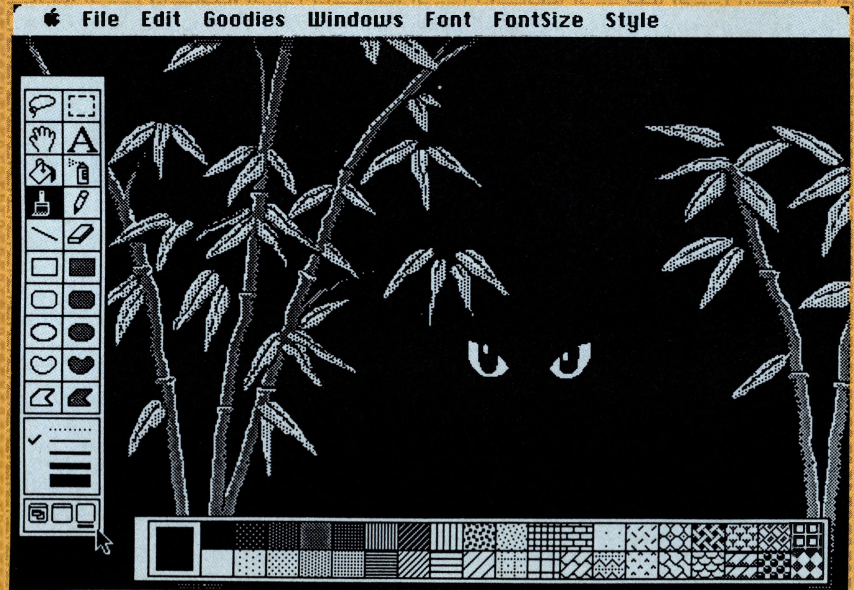
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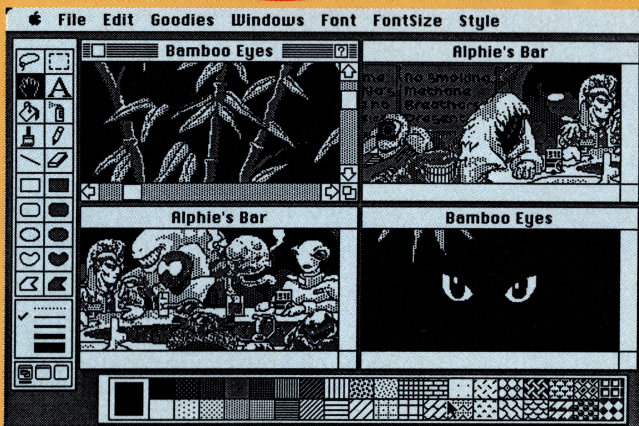
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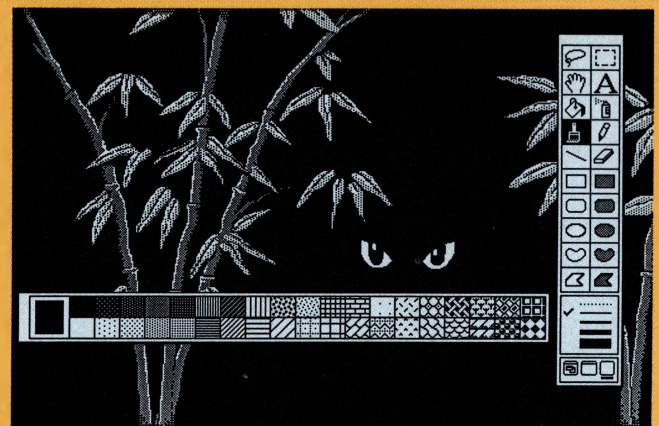
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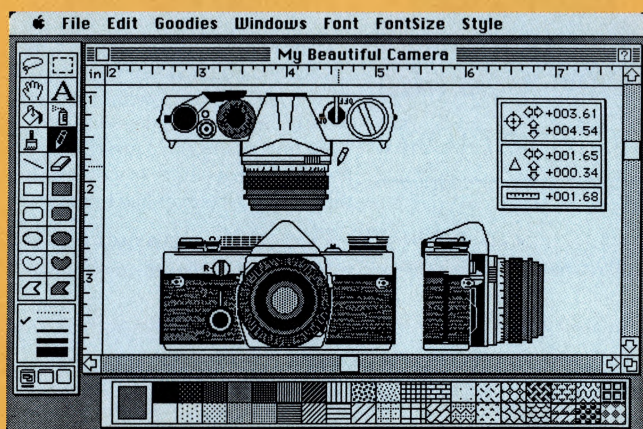
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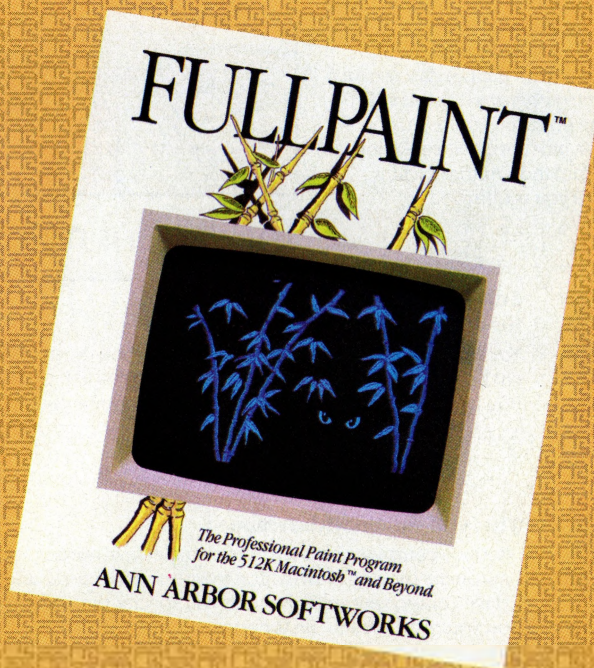


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CAN A MOUSE DANCE THE TANGO?

Designers and publishers of entertainment software for the Macintosh have wrestled with one nagging problem since the primal Mac owner slammed the first game program into the machine's disk slot. The Macintosh has all the ingredients of a great gaming computer except one: It isn't set up to accept a joystick-type command control device.

Most leisureware for the Macintosh reflects the perception that Macintosh users are, as a group, older and more sophisticated than Commodore 64 owners. Strategy and adventure titles dominate the catalogue, while sports and action contest are correspondingly rare.

But even the heaviest thinkers occasionally like to let go, turn the gray matter on "low," and surrender to the visceral pleasures of arcade-style action. Many software purveyors have tried to scratch this particular itch, but even the best programs must be judged noble failures.

Almost always it is the mouse which proves unequal to the task. Its sluggish response and inability to make precise movements are a virtually insurmountable barrier to the production of a first-rate action game. Frankly, few Macintosh computerists have the quicksilver reflexes which they enjoyed at age 18, so what they really need is a command control device that works faster than the joystick, not one which makes real-time on-screen movement all but impossible to execute skillfully.

Anyone who seriously doubts that the controller makes a critical difference should try *Lode Runner* (Broderbund) on the Apple II and then on the Macintosh. Doug Smith's climbing and digging action-strategy program is a computer gamer's dream on the IIe and IIc, but it's a dispiriting nightmare on the Macintosh. Movements which are difficult with the joystick, like digging a quick pit to delay a pursuing guard, are flatly impossible to implement with the mouse controller. Command control problems make the Macintosh edition of *Lode Runner* too frustrating to be much fun.

by Arnie Katz

Julius Erving and Larry Bird Go One on One (Electronic Arts) works better with the mouse than most of the other action games, though it can also be operated with the MouseStick, manufactured by Video-7. Because the half-court basketball simulation doesn't require sweeping, cross-the-screen movements, it doesn't suffer the same Command control problems which plague titles like *Championship Starleague Baseball* (Gamestar).

If the gamer avoids exaggerated mouse-movements, the Doctor and Bird remain under tight control. Still, anyone who has played *One on One* on other systems will instantly notice how hard it is to execute the intricate ball-handling and shot-blocking techniques which made the title an award-winner on the Apple II and Commodore 64.

Armchair pilots in *Skyfox* (Electronic Arts) employ the mouse to steer the futuristic, supersonic jet plane in 15 different missions against hostile tanks, planes, and motherships. Keyboard entry supplements the mouse and gives access to most of the aircraft's other features.

This isn't just a fly-and-shoot exercise. Besides its laser cannons, activated with the mouse button, the *Skyfox* has two types of missiles. A base computer helps locate the enemy, and an automatic pilot can zero in on the bogeys with gratifying accuracy. Designer Ray Tobey has provided seven special scenarios which enable the computerist to practice against different types and combinations of possible targets.

This action-combat classic retains much excitement and charm in its Macintosh edition, but it could prove frustrating for those not lucky enough to own a Video-7 MouseStick. Steering the plane is difficult, and it takes the precision of a robot to properly line up the enemy in the on-screen sighting cursor. With

much practice and patience, it can be done, but the struggle robs *Skyfox* of some of its inherent appeal.

Grand Slam World Class Tennis (Infinity Software) is a one-player action-simulation of big-time tennis for the 512K Macintosh. David Minor and Ed Rosenzweig, backed by a talented team which includes Phil Porter (animation and graphics) and Mark S. Pierce (original artwork), have designed a lucid, great-looking evocation of the grand slam tennis circuit.

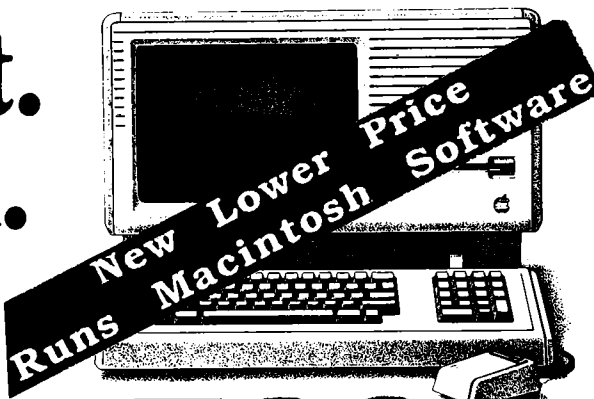
Once the compu-racqueteer practices sufficiently, he or she can play against four seeded opponents in the Australian Open, Wimbledon, U.S. Open, and French Open, in the quest to achieve one of the great feats in athletics, the grand slam. Each foe, from the fairly easy Ace to the top-ranked Demon, favors different strategies, and has weaknesses which the savvy gamer must analyze and exploit.

Winning all four events requires the player to prove mastery over a wide range of court surfaces and concomitant tactics. For example, the French Open favors baseline play because of its slow clay court. Most competitors will employ a wooden racquet. The fast grass of Wimbledon, on the other hand, is better suited to a net-rushing, serve-and-volley style. A wise competitor will choose a metal or graphite racquet for this tourney.

The "backspace" key toggles between the "active play" mode and the pull-down menus which present the game's numerous options. Besides the choice of racquets, opponents, and events, the program offers variable weather conditions, five speeds of play, optional ball sound, a smattering of tennis history, strategy hints for each event, and several types of scoring summaries. There's even a chance to protest the umpire's more objectionable close calls.

The computerist moves the on-screen surrogate around the court with the mouse, and initiates a stroke by hitting the action button. Keystrokes supplement this straightforward play-mechanic. The gamer can reg-

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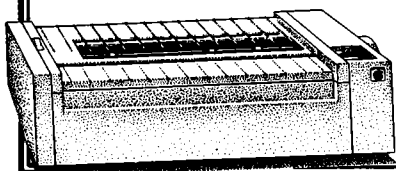
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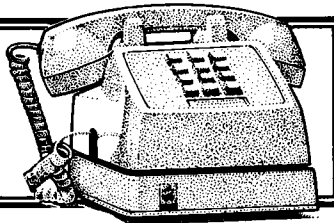
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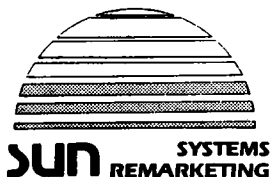
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ulate the power behind his swing and can lob, smash, slice, or add topspin.

The art, graphics, and animation are all quite good. The ball doesn't always disappear after a volley ends, but that's not a critical flaw. The players lope around the court quite realistically, and the inclusion of the little ballboy is a nice extra.

What is not quite so nice, however, is trying to get a player in position to hit the ball using the mouse. Even the slowest play-speed requires complete concentration and frisky fingers. Movements which would be a snap with a joystick are likely to defeat all but those with the sharpest reflexes.

Perhaps Infinity should get together with Nuvo Labs, which has recently introduced the Arcade-Adapter. This small plastic device allows a standard Atari-compatible joystick to plug into the Macintosh's mouse port. The Arcade-Adapter functions only with programs that have been suitably modified, but widespread adoption of this technology by software publishers could pay big dividends for Macintosh owners who enjoy a rousing action contest.

Nuvo is distributing a game called *Mac-Man* with the Arcade-Adapter. The company hopes synergy will promote speedy dissemination of the connector, while giving buyers at least one product to use with it right off the bat. It's a good plan, and the quick joystick response in *Mac-Man* is certainly an effective advertisement for the Arcade-Adapter.

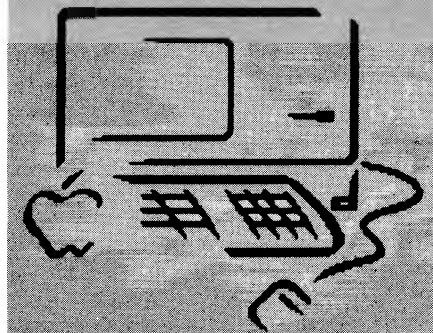
The game itself arouses ambivalence. It is undeniably a very close relative of *Pac-Man*. As in the granddaddy of all gobble games, the player steers a character through a series of mazes. The corridors of the labyrinths are lined with dots which the character must "eat" before four pursuing nasties catch up. Special dots confer limited-duration power which allows the gobbler to turn the tables on the tormenters and swallow them for bonus points. Periodically, bonus objects appear within the maze and boost the player's score if collected before they disappear again. Many small details prevent *Mac-Man* from being an exact copy of *Pac-Man*, but there's no mistaking the overall similarity between the two titles.

Humor and aptness are *Mac-Man*'s saving graces. The on-screen character is a voracious little Macintosh computer, and rival brands of computers furnish the opposition. Even the bonus objects are things like disks. It may be a clone, but at least it's a clever and entertaining one.

In the long run, the success or failure of the Arcade-Adapter may be more important than the quality of the game which accompanies it. Unless the software publishing industry embraces it or some similar device, Macintosh owners will continue to be deprived of the excellent joystick-controlled games which delight owners of other home computer systems.



ORPHAN SUPPORT



by Lewis Guice

Greetings, Ex-Orphans! Following is some information which should help you to optimize your Lisa/Mac XL systems.

Repairing the Lisa hard disk is an easy, yet critical, general system maintenance technique which many users overlook. Not only does it significantly increase the speed and performance of your Lisa Office System, but it will also increase your available hard disk space. The technique is as follows:

While the computer is off, insert your Lisa Office System 1 Diskette into the disk drive. Turn the computer on. Then, after the first "click" (internal diagnostics test), press both the APPLE and "2" keys to boot the Lisa Office System 1 Diskette. When your Option Menu appears, select "Repair." After Lisa locates the disk, it will prompt you that it has selected the proper disk. **WARNING:** *Be sure that you select the proper disk you wish to repair—if the Lisa attempts to repair the wrong disk drive, critical data could be damaged.* Once you are satisfied that the Lisa has prompted the proper hard disk drive, select Okay.

The Lisa will repair the disk within a few minutes. After the Lisa has completed the repair and has determined that the disk drive is okay, select Okay, go back the Main Menu and select "Repair" again. Now you may either Quit or go to the Office System. Follow this procedure once a week, three times sequentially. *Please note that the current version of Lisa 7/7 is 3.1. If you have not yet upgraded, call (415) 454-7607 for more information.*

Another simple technique which will increase speed and performance while in the Lisa Office environment is simply saving and putting away documents which you are no longer working with on the Desktop.

SHARING HARD DISKS

Sharing your Lisa Office System on the same hard disk drive with *MacWorks* has been found to cause problems and is not recommended. The best alternative at this point is to install a parallel board and an additional ProFile onto your system. In fact, you may run as many operating systems as there are available for the Lisa/Mac XL, e.g., 7/7 Office System, *MacWorks*, XENIX or UniPlus+, and *The WorkShop*. **IMPORTANT:** *MacWorks must be installed onto the DEFAULT*

drive, whether it be the drive connected to the lower base parallel port, or the internal 10 megabyte disk drive.

For those in serious need of a fix to the "Sad Macintosh" error number 0F00064 when trying to boot *MacWorks* 3.0 (the current version) from Lisa's hard disk, a call to your local dealer might be worthwhile. An "unofficial" repair program, called the "Hard Disk Mount Program," is being provided by Apple to dealers for distribution to their Lisa/Mac XL customers.

The problem, for those who are unfamiliar, is that the directory becomes corrupted because of the Finder's inability to manage excessive numbers of files on the hard disk, which occurs without the benefit of disk partitioning methods or HFS. In addition to the error 0F00064, typical symptoms of this problem include desk accessories disappearing, slow system response whenever your hard disk is reading the directory (e.g., opening a file, quitting to the Finder, etc.), and constant system crashes which lead to a hard disk failure.

As many of you are aware, the previous published fix to this problem required booting *MacWorks* while holding down the Option key, then booting the *MacWorks* System disk. At that point, the hard disk icon would appear and the user would replace the System Folder. However, in many cases the hard disk would no longer appear on the desktop. This problem is easily solved with Apple's unofficial* Hard Disk Mount Program (Version 2.0):

1) If the system is on, press the Reset button at the back. If the system is off, turn it on.

2) After you hear the first "click," press the spacebar. When the system completes its self-diagnostic test, the STARTUP FROM menu will appear at the upper left corner of the screen.

3) Insert the Hard Disk Mount diskette and use the mouse to select the microdisk drive. After about 30 seconds, the diskette is ejected from the drive, and the diskette icon with a question mark appears with "Hard Disk Mount" written under it.

4) Remove the Hard Disk Mount diskette and insert the *MacWorks* System Disk. When the Hard Disk icon and the *MacWorks* System disk icon appear, open both icons. Copy the System Folder from the *MacWorks* System Disk onto the hard disk.

MACSERVE: NOT JUST A NETWORKING PROGRAM

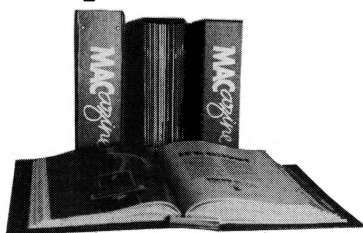
Another important recommendation if you are experiencing the above-mentioned System crashes, or if you want to avoid similar problems in the future, is to use Infosphere's *MacServe*, which allows you to partition the Mac XL's hard disk into many separate volumes sized to accommodate your particular file(s). *MacServe* allows networking capabilities on the AppleTalk network, incremental back-up of the hard disk, and Imagewriter print spooling. For more information about *MacServe*, contact Infosphere, Inc., 4730 SW Macadam Ave., Portland, OR 97201, (503) 226-3620.

TO ORPHAN OR NOT TO ORPHAN, THAT IS THE QUESTION

I recently spoke with Bob LeVitus, Editor of *The MACazine*, about many Lisa/Mac XL-specific products currently under development, and about the organizations which have demonstrated their commitment to users—and the momentum is growing. We want the "Orphan Support" column to continue to offer helpful, timely information, and to stay current with the marketplace. One aspect of this revitalized interest in the Lisa/Mac XL is that many users no longer view themselves as "orphans," but as "pioneers" in an ever-changing industry. We question whether "Orphan Support" is still an appropriate title for this column.

Therefore, we are asking you, the reader, to submit YOUR votes in a "RENAME-

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1) Participants may submit ONLY ONE entry.

2) An entry may contain *either* a vote FOR the continuation of "Orphan Support" or AGAINST "Orphan Support," along with a proposed new title.

3) If more entries FOR "Orphan Support" are received, or if *The MACazine* does not choose an alternative title from the submissions, a drawing of all entries will be held, and the winning name will receive a free subscription to both *The MACazine* and *The LisaTalk Report*.

4) If a new title for this column is chosen from among these entries, the winner will receive, in addition to free subscriptions to *The MACazine* and *The LisaTalk Report*, software valued at up to \$50, contributed by *The NetWorkers*.

5) Entries must be received by December 24, 1986. Send your entry to: *Name the MACazine Column Contest*, c/o *The MACazine*, 2666 31st Street, Suite 5, Santa Monica, CA 90405.

I am of the opinion that the Lisa/Mac XL community has endured a lot of criticism by individuals within the industry who are unfamiliar with the Lisa's power and sophistication. The time has come to win the acknowledgement we deserve. One way to show our strength in this community is to have a title

which will be reflective of the most powerful microcomputer ever built . . . the computer into which over \$50 million was poured into research and development . . . the computer on which five different Operating Systems can be run, simply by inserting a disk . . . the computer that is still predominantly used by software developers to produce Macintosh software today . . . the computer on which we will all likely reflect as we meet Apple's future release . . .

Thanks for your support and participation. Best of luck!

*This program is a beta-release program which has no part number. It is not expected that a revised copy will be provided by Apple at a later date.

Lewis Guice is the President of The NetWorkers, an information and consulting firm which has specialized in Lisa and Macintosh systems for over three years.

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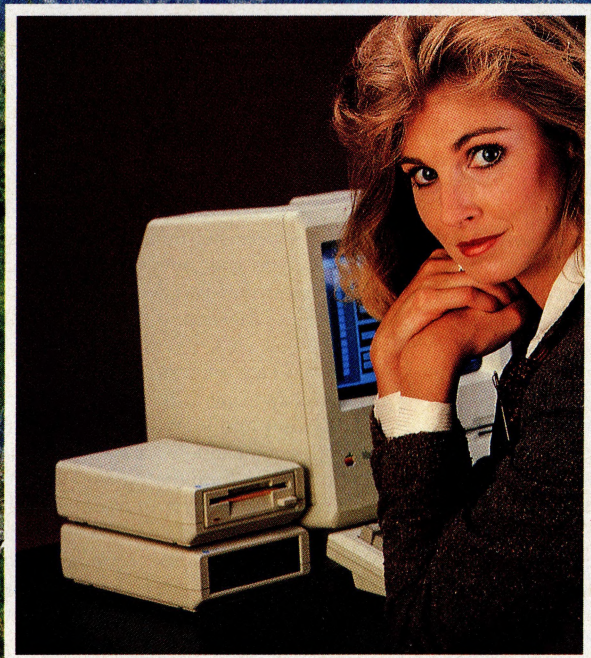
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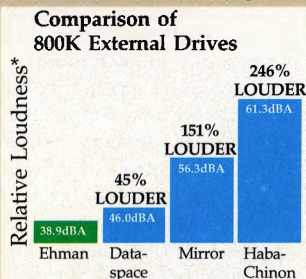
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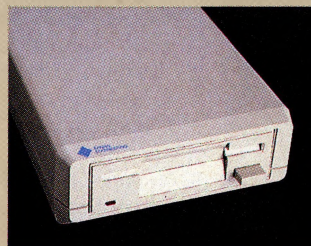


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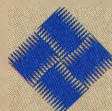


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POWER WINDOWS

COMING IN FOR A LAYOUT: SECRETS OF CUSTOMIZING YOUR FINDER

The Finder, the program that creates the Desktop on the Macintosh, has taken a bad rap lately (particularly from me) because it is often the limiting factor in using the Macintosh. However, this is mostly a case of seeing a great thing not living up to its potential. The Finder, perhaps more than anything else, gives the Macintosh its distinctive flavor and sets the basic model for its ease of use.

The Finder takes us out of the world of "command line interpreters" and cryptic acronyms, and presents us with a model based on objects. The Macintosh Desktop represents the parts of the computer environment as objects that can be manipulated in familiar ways. To delete a file or program, we don't have to type "ERA filename.ext" with precisely the right punctuation. We simply pick up the document and put it in the trashcan. No big deal. This simplicity is made possible through the Finder.

In addition to the basic simplicity the Finder provides, it also guarantees quite a bit of flexibility. Windows can be stacked up neatly and orderly, or they can overlap in a pile. You can put documents and programs on the Desktop, aligned to a neat grid, or thrown, willy-nilly, wherever you want them. The Finder gives you the freedom to be neat or messy. You can set up your Desktop in a way that feels comfortable to you. This ability to "customize" the Macintosh is one of the special qualities of its design.

Built into the Finder is another way to customize your use of it. There is a special resource called the Layout resource that contains information about how the Finder is used. It is pre-configured when you buy your Macintosh, but you can modify this set-up and change things around to better suit your needs.

This resource isn't documented in your Macintosh User's Manual but I'll describe the important features here. All you need is a current copy of the Resource Editor, *ResEdit*.

Let me say a word about *ResEdit*. *ResEdit* has an aura of mystery and power about it. It has a history of being an "experimental" programmers-only development tool—something far too dangerous and difficult for the rest of us. And while that was somewhat true in the early days, *ResEdit* has stabilized into quite a reliable, although still obscure tool.

The saying used to be that you "shouldn't use *ResEdit* on any disk you wouldn't mind using to scrape the mud off your boots." It was notorious for trashing disks. But those days are over. *ResEdit* works reliably if you don't stray too far off the beaten path. Even if you don't know what you are doing or why, if you

by Howard Bornstein

can reasonably follow directions, *ResEdit* is a powerful and useful tool without too much trauma.

It is important that you use the most recent version of *ResEdit*. The recent versions are more stable. The most current, as of this writing, is version 1.0D12. You should be able to get it from your Apple dealer, your local user group, or from CompuServe or GEnie. It works basically like most Macintosh programs. It presents information in scrollable windows and you can use the Cut, Copy, and Paste features as you do in *MacWrite*. While you are experimenting, however, it is a good idea to use a COPY of the program or resource you are working on.

The way to get to the LAYO resource is to run *ResEdit* and look for the Finder. *ResEdit* will present a window for every disk mounted in the System. Find the start-up disk and click its window to bring it to the front. The window lists all the files and folders on the disk. Open the System Folder by selecting and choosing Open from the File menu in *ResEdit*. You can also double-click on the line that says System Folder.

This opens a new window that displays the contents of the System Folder. Most likely, the Finder will be listed among the contents (if it is not, you will need to find out where the Finder is on your disk. Once you find it, follow the remaining directions). The Finder, being a program, is made up of various resources. You can see those resources by "opening" the Finder while in *ResEdit*. Select the Finder by clicking on it once and choosing Open from the File menu. Yet another window will open, showing the resources of the Finder. Scroll until you find a resource category called LAYO. This contains the Layout resource. Open the LAYO category in the same way and you should find only one LAYO resource, with an ID number of 128. This is the resource you will modify.

The last step is to open this particular resource. A larger window appears that allows you to enter text or numbers and select various radio button controls. It is in this window that you actually modify the resource.

So far we've talked about the "how" of modifying the LAYO resource. The other important part is the "what" of modifying it. Once you know what the options are and where they can be used, you create them by simply typing in a new text string or clicking on a different button. So let's look at the options the LAYO resource gives us.

When you open the LAYO window, you will see a list of labels and values displayed. These parameters are shown in Figure 1. They are the default settings for the Finder.

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Parameter	Default	Parameter	Default
Font ID	3	Icon Horz. Spacing	64
Font Size	9	Icon Vert. Spacing	64
Screen Hdr. Hgt.	20	Icon Vert. Phase	0
Top Line Break	-21	Sm. Icon Horz.	96
Bottom Line Break	17	Sm. Icon Vert.	20
Printing Hdr. Hgt.	42	Default View	1
Printing Footer Hgt.	32	Filler	0
Window Rect.	62 14 250 418	Text View Date	\$0200
Line Spacing	16	Use Zoom Rect.	1
Tab Stop 1	20	Skip Trash Warnings	0
Tab Stop 2	144	Always Grid Drag	0
Tab Stop 3	184	Unused 4	0
Tab Stop 4	280	Unused 3	0
Tab Stop 5	376	Unused 2	0
Tab Stop 6	424	Unused 1	0
Tab Stop 7	456	Unused 0	0
Column Just.	\$02	Icon-Text Gap	0
Reserved	\$00		

Figure 1. The LAYO resource default settings.

By modifying them, the Finder acts differently. However, you must take care when modifying a resource because many of the resource items work together as a group.

The first item is the "Font ID." The Font ID tells the Finder which font to use to display the icon names and window information. The Macintosh uses numbers to represent the fonts. Table 1 displays the font numbers.

The Finder's default font is set to the number three. Thus, Geneva is the font used to display your folder and document names. If you wanted to see everything in script form, you could set the Font ID to 5 and have everything displayed in the Venice font.

The second item, "Font Size," is also important. It is set at 9 points normally, but if you made Venice your new font, everything would look funny because Venice doesn't come in 9 point size. You would have to change the font size to 14 if you wanted Venice to look right.

You can use these two parameters to simply change the look of your Desktop, but they can also be particularly useful to the vision-impaired. Even though the screen image on the Macintosh is crisp and sharp, it may be hard for people with eye problems to read. Choosing a larger or different typeface can help matters appreciably. Be sure to pick a type size actually contained in your System file so the letters will look correct.

System Font	= 0
Application Font	= 1
New York	= 2
Geneva	= 3
Monaco	= 4
Venice	= 5
London	= 6
Athens	= 7
San Francisco	= 8
Toronto	= 9
Cairo	= 10
Los Angeles	= 11
Times	= 20
Helvetica	= 21
Courier	= 22
Symbol	= 23
Taliesin	= 24

Table 1. Font ID Numbers

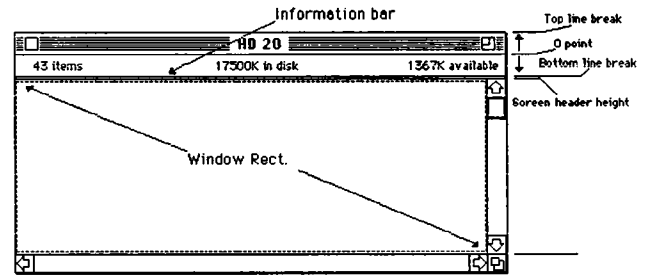


Figure 2.

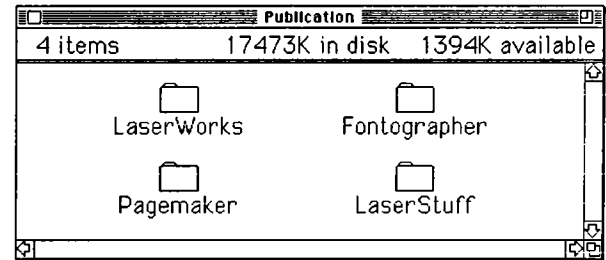


Figure 3. Larger font size. Size = 18, Top = -21, Bottom = 25, Hdr Hgt = 28

The next three parameters must also be considered if you increase the type size by any substantial amount. The items called "Screen Hdr Height," "Top Line Break," and "Bottom Line Break" determine the size and position of the information bar in the window. Figure 2 shows how each of these parameters are located on a window. By changing these values, you can make the Finder display your windows with large, readable letters, as in figure 3.

The next two parameters, "Printing hdr. hgt.," and "Printing footer hgt.," are used to set the distance the header and footer appear from the top and bottom of the page when you print a catalog of the disk with the Catalog menu command. Modification to these parameters aren't very useful.

"Window Rect." lets you set the size and position of a new disk window or folder. When you initialize a disk, or create a new folder, it contains no old information that can tell the Finder where the window was displayed last. The Finder uses the values from Window Rect. to position the new window.

Another parameter is also used when you open a "new" window. This is the "Default View" value. The Finder provides many views of a window. These views are presented in the View menu. When you open a new window or folder, the Finder uses the Default View value to determine which view it will display with. The current default is 1, so windows are displayed with normal icons. If you set it to 0, the window would display with the small icons.

The next group of resource values determine the format and content of a window when displayed in any of the "text" views. These are the Name, Date, Size, and Kind views from the View menu. "Line Spacing" determines how many dots separate each line

(baseline to baseline). "Tab stop 1-Tab stop 7" determine where to start each field in the text display. Apparently, only the first five stops are in use in the current Finder. The "Column Just." field is next, and this sets the justification of each field to either right or left. Table 2 shows how the field justifications are chosen, based on the setting of Column Just.

Another parameter that affects these views is "Text view date." This value determines the format that the date is displayed in. Figure 6 shows the different choices.

The "Reserved" parameter currently has no function and should be left at zero.

The next 5 parameters are used for formatting icons. Icons can be placed anywhere in a window, but the Clean Up command will align them all to an invisible grid. The "horizontal and vertical icon spacing" determines the size of this grid in dots. If you want your icons packed more tightly, reduce these numbers. Don't forget you need to leave horizontal room for the length of the icon name.

Speaking of icon names, if you routinely use Clean Up, but are bothered because your icon names always overlap each other, the next item, "Icon Vert. Phase," can solve this problem. If it is a negative number, the columns will be staggered, with every other column of icons offset vertically by the number of dots in Icon Vert Phase. This arrangement will keep their names from running into each other. Figure 4 shows an example of this.

"Sm. Icon Horz." and "Sm. Icon Vert." let you determine the grid size for the small icons. Small icons can be very useful if you arrange them properly. I've found that the most useful way is to provide a significant amount of room for file names. This means widening the horizontal spacing. Figure 5 shows a setting that allows three clean columns of icons to be displayed.

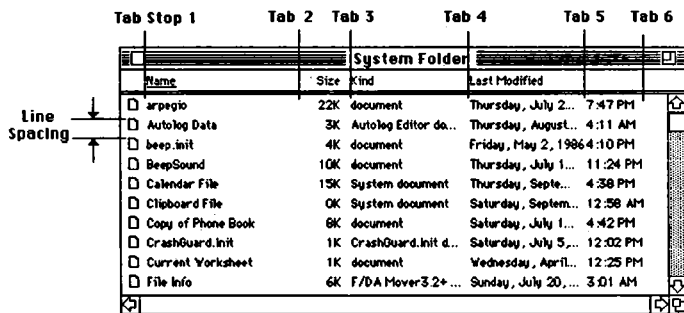


Figure 4.

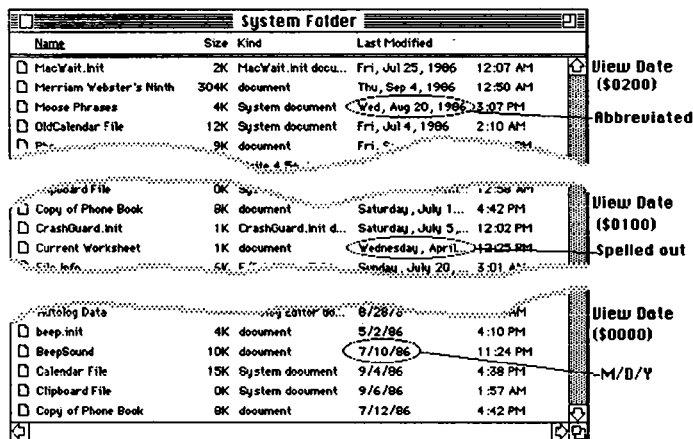


Figure 5. Different formats for the date with Text.

When I first got Finder 5.x, I couldn't see the advantage of the small icons. When I changed a window from normal to small icons, the icons got smaller but the spacing was the same. I could re-arrange everything by hand, but that was tedious. The Finder, however, provides several ways to position icons on the grid.

If you select Small Icon and then Clean Up, it will take any icons not on a grid rectangle and move it to one. But if all your normal-sized icons were already on the grid, nothing happens. However, if you hold down the Option key while you select Clean Up, the Finder erases the window and lays it out afresh, starting with the upper left hand of the window. The small icons are properly repositioned on the small icon grid.

You can force an icon to jump to the grid in two other ways. If you hold down the Command key, whenever you move an icon on the Desktop, it will always jump to a grid area. But the LAYO resource also has a radio button called "Always grid drags." If you click on the 1 button, all your icons will always be aligned to a grid mark. I find this feature very useful.

There are two other customizing features available in the LAYO resource. One, "Use Zoom Rects," lets you choose whether you want the Finder to open windows with rec-

tangles that zoom in and out. You can also elect to "skip the trash warnings" if you throw away a System file or locked file or folder. Change this with caution.

The final item, "Icon-text gap," determines the space, in dots, of the gap between the bottom of the icon and the start of the icon label.

By modifying any of these parameters, you may customize the Macintosh Finder to display its information in a more desirable form. You can also save various versions of the LAYO resource, each customized differently.

- I want to correct a mistake in my August column. I incorrectly listed *DateKey*, by Loftus Becker, as Freeware. It is actually Shareware, with the author asking for a payment of \$2 for use of the FKEY. A second version of *DateKey* (2.0) prints out both the date and the time. It is also Shareware for \$3. Each comes with its own installer which lists the copyright and shareware notice.

- Genesis Micro Software has released version 1.5b of *AutoMac*. *AutoMac* is a simple,

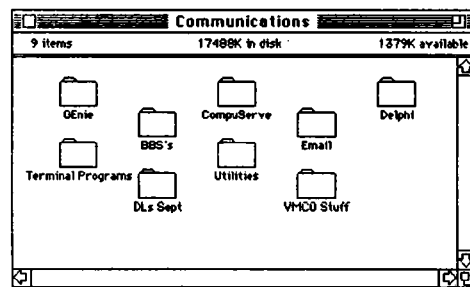


Figure 6. (Horz = 64, Vert = 50, Phase = -25)

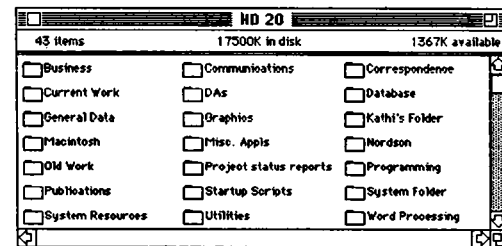


Figure 7. Small icons set at Horz = 130, Vert = 20.

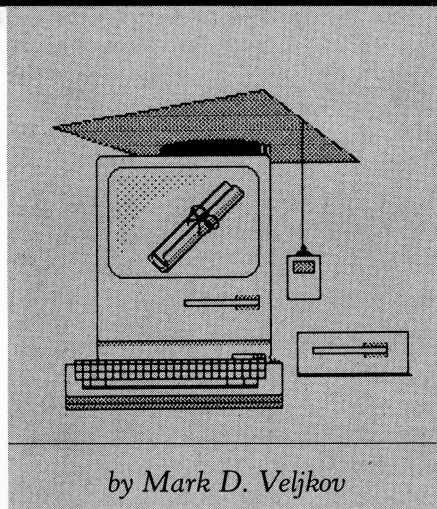
Time				Mod	Kind	Size	Name
0	0	0	0	0	0	1	0
0				2			

Table 2. The Default Justification, Left Justified = 0, Right Justified = 1

powerful macro system (see August issue of *MACazine* for full review). Version 1.5b fully supports the Hierarchical File System (HFS) and has several other nifty features. Its price is still \$19.95, which makes it unbeatable.

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by Mark D. Veljkov

Now that college football season is under way, it is time to get back to the business of the AUC. Schools are busy putting the Mac to the test. This month I will describe some new projects and programs, and I will also give you a quick look at a revolutionary application called Guide.

AUC PROJECTS/PROGRAMS

This month's AUC projects are all related to networking. The projects are impressive and provide substantial insight into networking with the Macintosh. These projects do not have fancy names. If one sounds interesting to you, please feel free to contact the university.

Carnegie Mellon University

CMU has connected over 1,000 computers of various brands throughout the CM campus. The Macs are connected via MacNet, a cooperative effort between CM, Stanford, and Dartmouth. On the network, the computers all speak the same language—Internet Protocol. This means that the different brands of computers can share data and files.

CONTACT:

Mr. Rob Chandhok
Carnegie Mellon University
Supervisor of Software Facilities
Center for Art & Technology
Pittsburgh, PA 15213
(412) 268-3452

Brown University

The folks at Brown turned an old dorm into a learning center filled with Macintosh computers. The Harkness House Project connects each of the 70 rooms in this building with AppleTalk. Students can access the Center's hard disk or the campus mainframe. Brown gets around the limit of 32 Macs per network with a device called the "Hub." The Hub was created by Harold Webber, a network scientist at Brown. The Hub effectively

allows each room to act as its own AppleTalk network.

CONTACT:

Steve Andrade
Harkness House Project Coordinator
Brown University
Providence, RI 02912
(401) 863-2824

University of Michigan

The U of M started a campaign to include a Mac lab in one of the campus's residence halls. Now EVERY residence hall has from 2 to 25 Macs. The computers are staffed and training programs are offered.

CONTACT:

Ellen Hoffman
Educational Coordinator-Computing Center
University of Michigan
Ann Arbor, MI 48109
(313) 936-2712

The University of Illinois

Bob Jones is a Sociology professor at the University of Illinois. He wrote a proposal to use Macs in the Sociology Department. This proposal included a 30-Mac lab, software, and curriculum development.

This may seem like a straightforward request; however, Bob's accomplishing this at the University of Illinois is an impressive feat. This is because the University of Illinois is an IBM-dominated school and they are committed to their Computer Science program—that they have their own Cray supercomputer attests to this fact.

Bob has opened the door for Macs to make inroads into this college. The University of Illinois should be commended for having the foresight to support the Mac and its philosophy. If you would like to find out more about what Bob is doing at U of I, write:

Bob Jones
Dept. of Sociology
University of Illinois
Urbana, IL 61801

Tufts University

One of the more interesting programs to attract my attention was the Summer Learning Program at Tufts University. This is a summer school program for learning-disabled students. Tufts is located in Medford, Massachusetts. Here again is another example of the small college doing big things. Tufts has had computers as part of its program for many years. However, this year the program incorporated the Macintosh computer. This is significant for several reasons. First, the Summer Learning Program may be the only program to offer LD students the opportunity to learn with the Mac, and the Mac is well suited to the learning-disabled student because of its consistent operating environment and user interface. When you combine this with the philosophical structure of Mac applications (Mac applications generally allow the user to control output instead of the other way around) and the mouse, the Macintosh should become the computer of choice. The folks at Tufts have had an entire summer to see how the students reacted to the Mac. Their subjective results would indicate that the Mac was an unqualified success—so much so, they plan on getting Macs again next year. Tufts's Summer Learning Program is proof that you do not have to be a large university to make a significant impact in the computer world. If you would like more information, contact:

Gabriella Goldstein
Director, Academic Program
Summer Learning Program
Tufts University
Medford, MA
(617) 381-3568

Guide

As mentioned before, *Guide* is a new program that should have some long-range effects on the Mac. *Guide* is based upon another application, *HyperText*, which was

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Linda Bove performed with The National Theatre of the Deaf for nine years. She has also starred in the Tony Award winning show, *Children of a Lesser God*.

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developed by Ted Nelson. Until now, it has run on mainframe and mini-computers only. Put simply, *HyperText* dynamically links text in a hierarchical fashion. This means that you can designate specific areas in a text document as a “Hot” area. Clicking on this “Hot” area will link you to another document that is “nested” within the “Hot” area. The concept is similar in structure to the Mac’s hierarchical filing system. Instead of files within folders and folders within folders, *HyperText* allows documents to be nested within documents. *Guide* performs the same function. However, given the graphic capabilities of the Mac, the nested documents can also contain graphics. These graphics can themselves contain “Hot” areas.

There is another feature that makes *Guide* even more useful. This is *MiniGuide*. *MiniGuide* is a 55K desk accessory, about half the size of the *Guide* program. *MiniGuide* is a read-only version that allows you to use any *Guide* files that are on your disk.

Guide is currently shipping, and retails for \$134.95. If you are interested and want to find out more about *Guide*, contact OWL, Int'l. Their USA office is in Bellevue, Washington.

Their address is:

OWL, Int'l.
14218 N.E. 21st
Bellevue, WA 98007
(206) 451-2286

CONCLUSION

I would be interested in hearing from Mac owners who use the Radio Shack Model 100/102. Having used the Model 102 for several months, I don’t know how I got along without it. Uploading text files to the Mac is a snap. If you use *MicroPhone*, you can automatically save your document as a *Word* or a *MacWrite* file. Perhaps Tandy could offer students a Model 102 for \$150 more when they buy a Mac since the Model 102 is perfect for students to use in their classes.

Next month, I will have more projects, more programs, more news, more . . .

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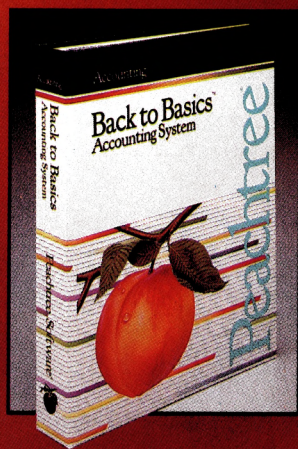
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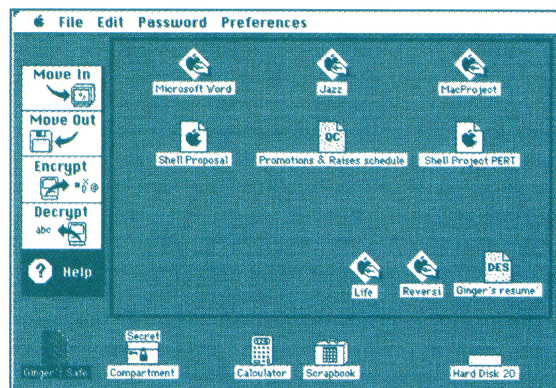


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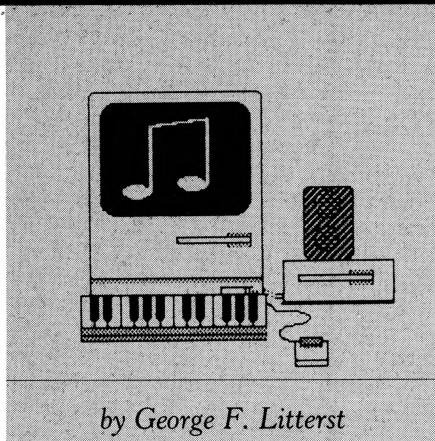
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THE WELL-TEMPERED MAC



by George F. Litterst

This month I have a potpourri for you. A lot of composing and performing is being done with Macs these days. The Los Angeles Contemporary Exhibitions (LACE) is sponsoring a "Saturday Night New Music Concert" on October 5th, featuring works by composers using the Macintosh Computer. According to the promoters, "(the) intention is to encourage experimentation with this new and powerful composing tool." Emphasis has been placed on compositions which involve "interaction between the music and other media, such as computer-generated graphics, film, video, live performance, and dance."

The new Computers and Music subgroup of the Boston Computer Society is planning a festival of computer music for the spring of 1987. The weekend-long festival will feature music for all types of microcomputers. Mac users have been more prominent than users of other computers in this subgroup, so I expect there will be a number of interesting works for the Macintosh premiered at the festival. For more information, contact Dr. James Romeo at 945 Memorial Dr., Dunster D11, Cambridge, MA, 02138.

NEW ALBUMS CREATED WITH THE MACINTOSH

Last March, Paul Lerhman, former Vice-President of Southworth Music Systems, released what may be the world's first album completely produced on the Mac. Titled "The Celtic Macintosh," this 41-minute cassette consists of traditional and contemporary Irish and Scottish jigs, reels, hornpipes, airs, and laments. To create this album, Lehrman used the Total Music sequencer, and electronic instruments and processors from Yamaha, Casio, Roland, Kurzweil, and Lexicon. Lehrman was able to put this album together by recording and editing many separate tracks on the Mac. The Mac then performed the music on the aforementioned instruments, and the performance was recorded directly to two-track digital tape.

The arrangements on the cassette are all original. In Lehrman's words, they "represent a variety of styles from traditional acoustic dance music, to the orchestral folk song settings of Gustav Holst, Ralph Vaughan Williams, and Aaron Copland, to the electric folk of Pentangle and Fairport Convention, to modern jazz, to '80s' electronic rock." I found

the album to be most enjoyable. It sells for \$10.

A completely different type of Macintosh-produced album was released this summer by Musicworks of Boston. Entitled "MIDI Jazz," it features virtuoso jazz piano performances by Bob Winter on a 3-1/2 inch Mac disk. Winter created the album by playing a Yamaha KX-88 keyboard controller with a Yamaha TX synthesizer, and recording his actions with Musicwork's MegaTrack XL sequencer. The disk contains the MIDI data of these performances in MegaTrack format, which can be heard by playing the music files on the disk through a MIDI instrument. The disk includes the TapeDeck application for this purpose. It is not necessary to own MegaTrack.

This MIDI album represents a totally new concept. It breaks new ground by creating a live performance for the listener, and by opening up the area of possible audience involvement with the music. Owners of this album who also have MegaTrack XL can examine the performances visually, as well as experiment with them by adjusting the playback speed or by editing the notes themselves. In the words of producer John Amaral, this album is an "interactive record."

Winter is an excellent pianist who has performed with the Glen Miller and Boston Pops Esplanade Orchestras. His album includes twelve pieces, ranging from Stella by Starlight to Giant Steps. It is suitable for playback on a Yamaha TX; Roland Piano; Kurzweil 150 rackmount, spinet, or 250; or any of the many new digital pianos. The album retails for \$29 and is not to be missed.

THE CLASSICAL PIANIST AND THE NEW MUSIC TECHNOLOGY

Last spring, John Amaral invited me over to his Musicworks studio to try my hand at recording some classical piano music with the MegaTrack system. He offered a Yamaha KX-88 keyboard, a Roland piano module, and the latest version of MegaTrack XL. Naturally, I

was curious to try out this sequencing software which is being used by a broad spectrum of people, including Herbie Hancock and Bill Atkinson.

The KX88 has a full-size piano keyboard with weighted keys. Two pedals were provided, one for sustain and one for volume. The KX88 does not create sound itself but sends MIDI data to the sound-producing modules of one's choice. The Roland piano module on hand had several different keyboard sounds. I chose the "Steinway" sound.

Being a classical pianist, I first had to adjust to the sound that I was hearing and the unfamiliar touch of the keyboard. The sound more nearly approximated the sound of a Steinway grand in certain registers and at certain volumes than in others. It was necessary to adjust the volume control of the Roland carefully in order to correlate properly with the amount of key pressure that it took to achieve desired levels of volume.

I also learned that I had to readjust my pedaling technique. The volume pedal operated in the opposite way to the una corda pedal on an acoustic piano. When the volume pedal was depressed, the volume was increased. I decided not to use it.

The sustain pedal operated as a switch; it was either on or off. On a grand piano it is possible to depress the pedal after bass notes are struck and released and still capture them. Grand pianos also lend themselves to half-pedaling and fluttering. With this new electronic circuitry, I discovered that I had to pedal punctually and rely more on my fingers for special sustaining effects. Pianists always have to adjust to unfamiliar instruments, so I did not mind altering my playing style.

I have always been nervous about playing for tape recorders because tape recorders don't lie. Unfortunately, the Mac doesn't lie either, but the Mac does allow for easy editing. MegaTrack operated smoothly and efficiently, and was easy to learn. I could edit in ways not possible with tape. The graphic editing

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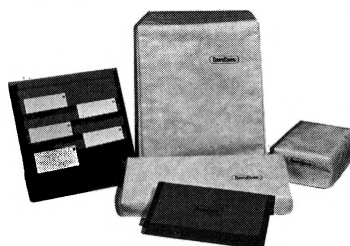
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mode allowed me to correct wrong notes and rhythms with ease.

The only drawback to the editing procedure was that I could not immediately hear the passage that I had edited, but had to replay the piece from the beginning. Fortunately, MegaTrack has a fast forward mode that is very fast. I expect that a future release will allow for play from any point in a piece. I will review MegaTrack XL carefully in a future column.

The new electronic and digital pianos make it possible to create a new type of "piano roll" with sequencers such as MegaTrack. Although I still prefer my own Steinway, I must admit that these new instruments are catching up with their acoustic counterparts. The best ones already sound better than many existing acoustic pianos. They have the advantage of portability, of not having to be tuned, of interfacing with computers and other instruments via MIDI, and the ability to provide immediate and objective feedback to a performer. Used properly, they can be powerful educational tools.

NEW PRODUCTS AND OTHER TIDBITS

Adobe now has a LaserWriter music font for the Mac called Sonata. The new version of the *Deluxe Music Construction Set* is the first program to use this font. The results that I have seen are incredible. This new font makes music printed on the Imagewriter look sick!

I don't know what features are in the new DMCS, but I can't wait to find out. Sooner or later everyone will be supporting this font.

E-Machines has been demonstrating a new seventeen-inch screen for the Mac called Big Picture that shows 1024 by 808 pixels. When used with *Professional Composer*, one can view and edit twelve staves at once. The retail price is \$1,995. Other companies (i.e., Radius and MicroGraphic Images) are offering similar products.

More educational music software is becoming available for the Mac. Editions Ad Lib. of Canada has a \$150 ear training product which is due to be finished this fall. It features digitized piano sound, a staff editor, and keyboard input either on screen or via MIDI. Carnegie Mellon has released a program called *MacVoice* through Kinko Graphics Stores which assists students in writing four-voice chorales according to 17th and 18th century practices. I'll let you know more about these programs when the information is available.

A new *softtext* called *Ear Training Expert* is now available from Techno-Arts. Conceived as a product for college work in the basic materials of music theory, this *softtext* consists of three interrelated components: a beginning theory textbook, a workbook, and ear training programs on disk. The textbook and workbook cover the science of sound, the notation of pitch, rhythm, time signatures, scales, modes, key signatures, intervals, triads, and seventh chords. Programs on disk include melodic dictation; ear training drills for

scales, intervals, triads, and seventh chords; and programs which demonstrate the properties of sound waves and various temperaments. This package is being used at Northeastern University this fall, and I am one of its co-developers.

One of the most popular synthesizers being used with the Mac these days is the Yamaha DX7. Both Opcode and Musicworks sell patch librarian programs for the DX7, and Opcode has an editor as well. Recently I received the first issue of *The DX User* newsletter. It is published by Al Duester and looks good. The address is listed at the end of this article.

A PERSONAL NOTE

I have been actively using and writing about Macintosh music software for over a year and a half. During that time I have reviewed as much software as space permits, have spent hours seeking out and talking to developers, and have mentioned the existence, at least, of every piece of music software and hardware for the Mac that I could find.

It was probably inevitable that I would eventually get involved in this exciting field as a developer. In order to maintain the objectivity of this column I will leave the reviewing of all educational products that might be seen as competitors to *Ear Training Expert* to someone else. I will, however, continue to mention all available products in this column as well as continue to promote the Macintosh in music education.

The Celtic Macintosh
LehrWare
31 Maple Ave. #1
Cambridge, MA 02139
(617)497-7522

MIDI Jazz
Musicworks
18 Haviland
Boston, MA 02115
(617)266-2886

Big Picture
E-Machines
7945 S.W. Mohawk St.
Tualatin, OR 97062
(503)692-6656

Information concerning MacVoice:
Dr. Marilyn Thomas
Carnegie Mellon U.
Department of Music
5000 Forbes Ave.
Pittsburgh, PA 15213

Ear Training Expert
Techno-Arts
28 Daniel St.
Newton Centre, MA 02159
(617)964-0519

The DX User
P.O. Box 209
Woods Hole, MA 02543



Software Update



You asked for it [MacMail—Vol.3 Number 7]. In response to a letter which described the trials and tribulations involved in obtaining the most recent version of a product, we asked if the readers wanted a listing of current version numbers. Your letters told us you did. With our thanks to *MacNews* for gathering this information and allowing us to reprint it, here is *Software Update*. We apologize for the small type size.

Name	Vers.	Company	L	M	C	T
Accessory Pak	1.0	Silicon Bch.	40	y	n	2
Accountant's Ch			695	y	y	1
Acta	1.0	Symmetry	60	y	n	3
Airborne		Silicon Bch.	35	y	y	4
Alter Ego		Activision	60	y	y	4
AMS Gen Ledger	2.06	AMS	295	y	n	1
Ancient Art War		Broderbund	50	y	y	4
Animat Toolkit		Ann Arbor	150	y	y	2
AppleTalk to IW	2.2	Apple			y	5
Astronomy	2.8	E&M				13
Aztec C Coml.	1.06h	Manx	499	y	n	6
Aztec C Pers.	1.06h	Manx	199	y	n	6
Bal of Power	1.03	Mindscape	55	y	y	4
Back to Basics	1.03	Peachtree				1
Baron		Blue Chip	60		y	4
BASIC Compiler	1.0a	Softworks		y	y	6
Battery Pak	1.23	Batteries Incl	50	y	n	5
Binhex	5.0	Mainstay		y	n	7
Boston Font II	2.0	SW		y	n	2
BPI Gen Accounti		BPI	425	y	n	2
Brimstone		Broderbund	40	y	y	4
Bulk Mailer	2.03	Satori			y	8
Bus. Filevision		Telos	395	1	y	9
Calendar Maker	2.0	CE Software	35	y	n	2
Captain Magneto	7	PowerTools	20	y	n	4
Cauzin Softstrip		Cauzin	195	y		5
Champ. Boxing	1.0			y	y	4
Checkmark		Checkmark	295	y	y	1
ChipWits	1.1	BrainPower	50	2	n	10
Chooser	2.3	Apple		y	n	5
ClickArt Effects	1.0	T/Maker	50	y	n	2
Click/On (DA)	1.3	T/Maker	80	y	n	11
Color Chart	1.3	Esoft				2
ColorPrint	2.01	Esoft	50	y	n	5
ConcertWare+	3.1	Great Wave	70	y	n	12
Copy II Mac	5.5	Central Pt	40	y	n	5
Crunch	2.0	Paladin	195	y	y	11
Cyborg		Broderbund	40	y	y	4
Day Keeper Calnd	1.55	Drms of Phe	40	y	y	5
Deja Vu: Nightmar		Mindscape	50	3	y	4
Delux Music Cnt	1.0	Elect Arts	50	y	y	12
Desk Acc Mover	1.4	CE Software		y	n	5
Desk Toppers	3.0	Harvard Asst	50	y	y	5
Dinner at 8		Rubicon	60	y	y	13
DiskInfo (DA)	1.43	SW-Maitreya	10	y	n	5
Disk Librarian	1.7	Little Bit		y	n	5
Doc. Compare		Model Office	99	n	y	3
Dollars & Sense	1.4	Monogram	150	y	y	1
Easy3D	1.01	Enabling Tech	99	y	n	2
Edit	2.0D1	Apple		y	n	5
Electric Ckbook	2.0	State of Art	80	4	y	1
Enchanted Scep.	1.0	Silicon	40	y	y	4
Ensemble	1.0	Hayden	100	y	y	13
Epstart	2	SoftStyle	45	y		5
Excel	1.01	Microsoft	395	y	y	14
Executive Office	4.0	DataPac		y	n	14
ExperLisp	1.05	Expertelligen	495			6
ExperLogo	1.1	Expertelligen	150			6
Extras	1.5	SW-B. Luce	10		n	5
Factfinder	1.1	Forethought	150		n	9
FastFinder	2.1	Tardis	100			5
Fedit	4.0	MacMaster	40	y	n	5
Fedit Plus	1.0.6	MacMaster	40	y	n	5

Filemaker Plus	1.0	Forethought	295	4	n	9
Filevision	1	Telos	195	4	y	9
Financial Cook		Elect Arts	45	y		8
Financial Util		Cognitive	69		n	8
Finder (HFS)	5.3	Apple		y	n	5
Finder (MFS)	4.1	Apple		n	n	5
First Base	2.6	Desktop	195		y	9
Flight Simulator	1.0	Microsoft	50	y	y	4
Fokker Triplane	1.0	PBI	40	n	y	4
FONTastic	2.7	Altsys	50	y	n	2
FontDisplay	4.0	SW-Shulman	10	y	y	5
Fontographer	2.0	Altsys	395	y	y	2
Fontsie	1.51	SW-L. Becker	5	y		5
Font/DA Mover	3.2	Apple	Free	y	n	5
Forecast	1.1	Monogram	70		y	1
Freeterm	1.8	Drms of Phe	free	y	n	7
Front Desk	3.0	Layered	150	y	y	5
Fullpaint	1.0	Ann Arbor	100	y	n	2
Gallery Finance		Micromax	795		y	1
Gato	1.4	Spectrum H	40		y	4
Hard Disk Util	1.26	FWB Sftwr	90	y	n	5
Hardisk		Great Plains	695	y		1
Harrier Strike		Miles	50		y	4
Hayden Speller	1.2C	Hayden	80			3
Helix	2.0r5	Odesta	395	y	n	9
HFS Backup	1.1	PCPC	85	y	n	5
HFS Locator Plus	1.4	PBI	35	y	n	5
Hippo C1		Hippopotamus	149		y	6
Home Accountant	1.03	Arrays	150	y	y	1
Housekeeper		Aegis	60		n	1
I know It's...		Hayden	60	y		9
ImageWriter	2.3	Apple	free	y	n	5
Interlace R	1.1	Singular Sft	139	y	y	9
InTouch	2.1	Palantir	145		y	7
Investor		P3, Inc.	150	y		8
Jazz	1A	Lotus	395	y	y	14
Just Text	1.1	Knowledge	195	y	n	3
LaserPrep	3.1	Apple	Free	y	n	5
LaserWorks		EDO	299	y	y	2
LaserWriter	3.1	Apple	Free	y	n	5
Legal Billing	1.12	Satori				13
Liberty Sp Ck	2.0D	DataPac	60	y	y	3
Lode Runner	1.0	Boderbund	40		y	4
Mac C	4.52	Consular	375	y	n	6
Mac Ref Sys.		TOM	110	y	n	13
MacSpellRight		Assimilation	89	1	n	3
MTK Fonts		Miles	50	y	n	2
MTK V1		Miles	40	y	n	2
Mac Zap	4.1	MicroAnalyst	60	y	n	5
Mac + II	3.0	meacom	150			5
MacAsm	2.0	Mainstay			n	6
Macbase	1.0	Eqtron	125	y	n	9
MacBillboard	4.01	CE Software	35	y	n	2
MacBooster		Mainstay	50	n	n	5
MacCalendar		Videx	89	5	n	5
MacDiskCat.	2.1.1	New Canaan	40	y	n	5
MacDraft	1.3	IDD	239	y	y	2
MacDraw	1.9	Apple	195	y	n	2
MacEdge		Think Ed.	50		y	10
MacExpress		Alsoft	495		n	6
MacForth 1		Creative Sol	149		n	6
MacForth 2		Creative Sol	249		n	6
MacForth 3		Creative Sol	499		n	6
MacGolf	2.0	Practical Com	60	y		4
MacI	1.1	Palo Alto	50		n	6
MacIndexer	1.0	Boston Softw	50	y	y	3
Mac Pascal	2.1	Apple	125	y	y	6
MacLabeler	2.2	Ideaform	50	y	y	5
MacLightning	2.0	Target	100	y	n	3
MacLink	1.14	DataViz	155		n	7
MacMate	1.0	SMB Devlpmt.	50		n	5
MacMemDisk		Assimilation	29	n	n	5
MacNosy	2.25	Jasik Dsgns	85	y	n	5
MacOneWrite	1.0	Sierra	245	y	y	1
MacPaint	1.5	Apple	125	y	n	2
MacProject	1.0	Apple	125		n	13
MacPublisher II	2.7	Boston Softw	195	y	y	3
MacQwerty		Paragon	35		n	5

Name	Vers.	Company	L	M	C	T
MacScheme		Semantic	125			6
MacServe	2.1	Infosphere	250	y	y	5
MacSpell+	1.1	Creighton	99	y	y	3
MacTerminal	2.0	Apple	99	y	n	7
MacTracks (DA)	2.0	Assimilation	29	6	n	5
MacType		Palantir	50		y	10
MacWrite	4.5	Apple	125	y	n	3
Magic Slate		Devionics	99	y	y	2
MasterType		Scarborough	50		y	10
MDS		Apple	195	y	n	6
Megamax C	3.0	Megamax	300		y	6
Microphone	1.0	Sftwr Ventur	75	y	n	7
MicroPlanner	1.1	Microplanning	395		y	13
MIDI Composer	1.0	Assimilation				12
MidiMac CZ Lib.	2.01	Opcorde		y	y	12
MidiMac Seq.	2.0	Opcorde		y	y	12
MidiWorks	1.0	Musicworks				12
Mind Sight		Execucom	195	y	y	13
miniWRITER	1.0	Maitreya	12	y	n	5
MockPackage(DA)	4.3	CE Softwar	25	y	n	5
More	1.0	Living Video	295	y	n	3
Mouse Ex BBS	4.1	Drms of Phe			n	7
Mouse Ex Trm	1.4	Drms of Phe		y	n	7
MS Basic	2.1	Microsoft	150	y	n	6
MS Chart	2.0	Microsoft	125	y	n	2
MS File	1.02	Microsoft	195	y	y	9
MS Fortran	2.2	Microsoft		y		6
MS Logo	1.0	Microsoft	125		n	6
MS Word	1.05	Microsoft	195	y	y	3
Multiplan	1.1	Microsoft	195	y	y	11
Music Works	1.1	Hayden	80	y	y	12
My Office		DataPac	130	y	y	5
myDiskLabeler	2.11	Ws & M	45			5
M.U.D.	1.0	Hayden		y	n	2
Neon	1.5	Kriya				6
NotePro		Learning Skil	60		n	10
Omnis III	3.21	Blyth	495	y	y	9
OverVUE	2.0D	ProVUE	295	y	n	9
Pac Paint	1.0	Mainstay	40			5
Packer		Bobbing	29	y	n	5
PackIt	III	SW-Chesley	10	y	n	5
PageMaker	1.2	Aldus Corp	495	y	y	3
Paint Cutter	1.0	Silicon Bch.	40	1	n	2
PaintMover	0.03	PD-Atkinson	PD			2
Pascal	2.0	TML	100	y	n	6
Performer	1.0	Mark of Unicorn	295			12
PFS File	A.03	Sftwr Publish	125			9
PFS File/Rep.	A.03	Sftwr Publish	195			9
PosterMaker		Strider	40	y	n	2
Powermath	1.0	Brainpower	100	1	n	13
ProAnalysis		Technalysis	295	y	y	8
Prof. Bibl. Sys.		PBS	295	y	y	3
Prof. Composer	2.0	Mark of Unico	495	y	y	12
QUED	1.5	Paragon	65	y	n	5
Quickset (DA)	2	EnterSet	50		n	5
Q&D Utl Vol 1	1.6	Drms of Phe	40		n	5
Q&D Utl Vol 2	1.0	Drms of Phe	40	y	n	5
Rags to Riches	2.6	Chang Labs	199	y	n	1
Ram Start	1.23	PD-G. Nelson	PD			5
ReadySetGo	2.1	Manhattan G	195	y	n	3
Record Holder	2.1	Softwr. Disc	50	y	n	9
Red Ryder	9.4	SW-Freesoft	40	y	n	7
Red Ryder Host	1.01	SW Fresoft		y	n	7
REdit	1.2	Apple	free	y	n	5
ResEdit	1.0A1	Apple	free	y	n	5
Right Word	3.0	Assimilation	89	y		3
Rogue	1.0	Epyx	39		y	4
Sargon III	1.0	Hayden	50	y	y	4
SideKick	1.11C	Borland	85	y	n	5
Silicon Press	1.0	Silicon Bch.	80	y	y	2
SkipFinder	6.1	SW-D. Adler		y		5
Slide Show Mag.	1.3	Magnum	60	1	y	2
Smartcom II	2.2B	Hayes	149	y	n	7
Spellswell	1.2	GJI	50	y	n	3
Statview	1.0	Brainpower	190	y	n	8
Statview 512+	1.0	Brainpower	350		y	8
StatWorks	1.2	Cricket	125	y	n	8
StoryBoarder		Amer Intell	495	y	y	2
Strategic Conq.		PBI	50		y	4
Strictly Busin	1.9	Future Design	395	y	n	8
Switcher	5.0	Apple	20	y	n	5
System MFS	2.0	Apple	Free	n	n	5
System HFS	3.2	Apple	Free	y	n	5

Telescope	1.0	Mainstay	125	y	n	7
Tellstar I		Spectrum	50		n	13
Tellstar II		Spectrum	80		n	13
Tempo (DA)	1.1	Affinity	99	y	n	5
Think Tank 128	1.1	Living Vdotx	145		y	3
Think Tank 512	1.3	Living Vdotx	195	y	y	3
ThunderScan	3.2	Thunderware	229	y	n	2
Top Desk	1.4	Cortland	60	y	y	5
Turbocharger	2.0 v.D	Nevins	60	y	n	5
TurboDownload	1.0	Mainstay	40		y	7
Twelve-C	1.4	Drms of Phe	40	y	n	5
TypeNow	1.0	Mainstay	40		n	5
Typing Tutor III	1.1	Simon & Schus				10
Ultima III		Origin	60	y	y	4
VCO	1.3	Harry Chesley		y	n	7
VersaTerm	2.1	Peripherals	99	y	y	7
VideoWorks	3.0	Hayden	100	y	y	2
VMCO	1.5c	SWB. Perez		y	n	7
WayStation	2.7	PD-Softwr	PD	y	n	5
WillWriter	1.0	Legissoft	40	y	n	13
Wizardsry		Sir-Tech	60	y	y	4
Word Handler	1.1	ALS	80	y		3
Work'n print		Assimilation	29	y	n	5

Definitions

L	List Price
C	Copy Protection
M	MacPlus Compatible
1.	Must be at root level
2.	External drive
3.	Must use its own system
4.	Application and files must be in same folder
5.	MFS only
6.	Does not work on a HD20
T	Type
1.	Accounting
2.	Graphics/Fonts
3.	Word processing, publishing, etc.
4.	Games
5.	Utilities
6.	Programming
7.	Communications
8.	Business
9.	Database
10.	Education
11.	Spreadsheet
12.	Music
13.	Specialized
14.	Integrated

Any errors in this table are unintentional.

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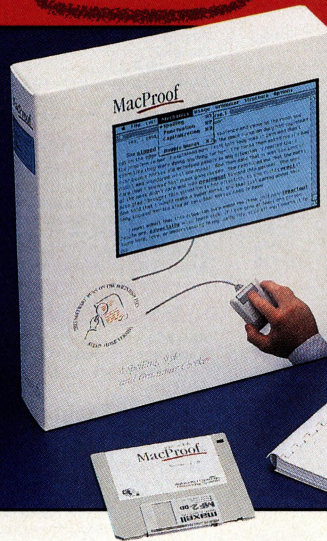
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STYLE

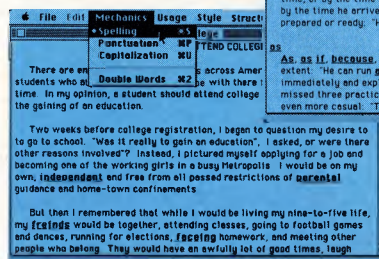
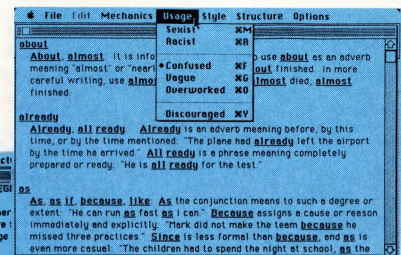
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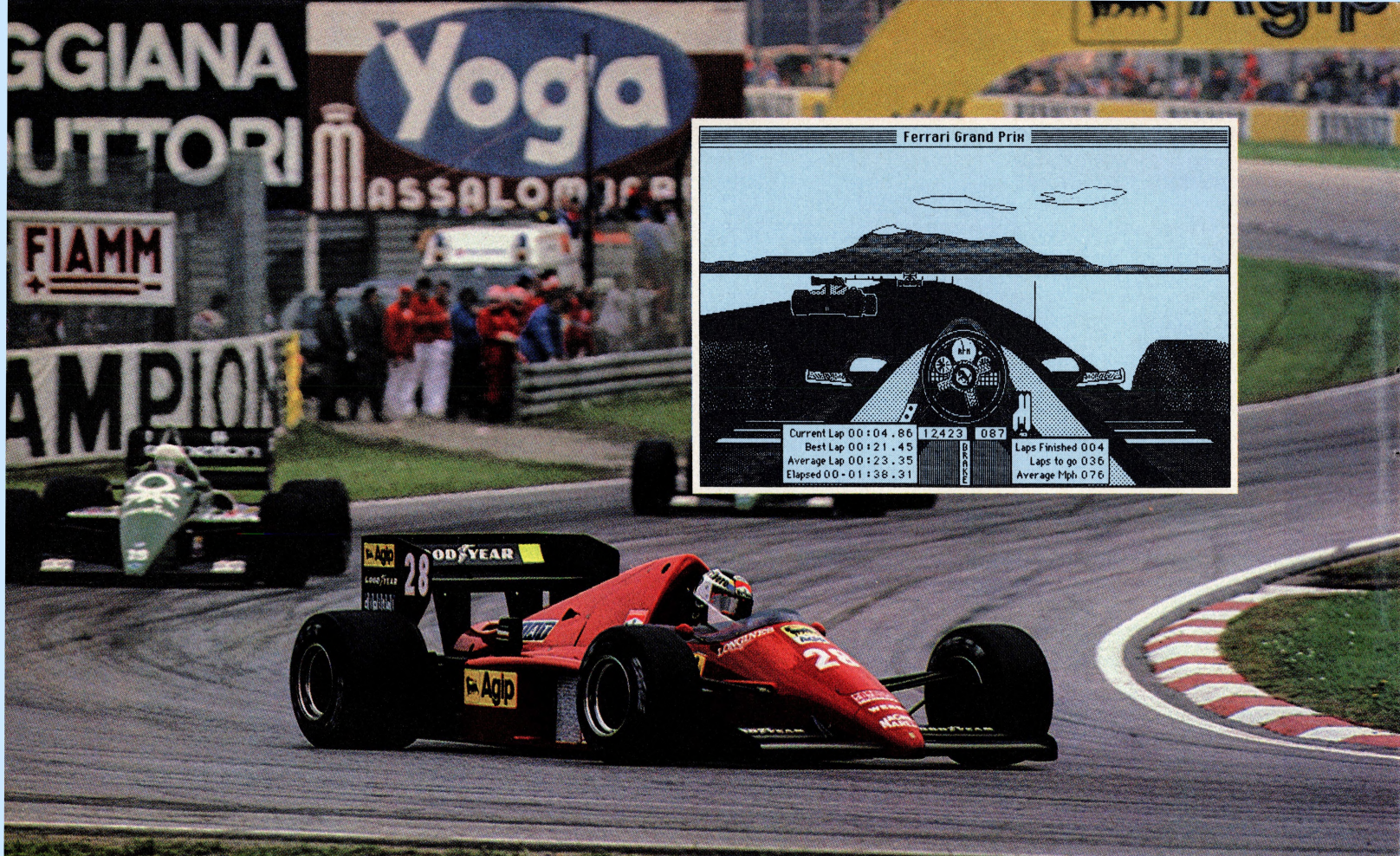
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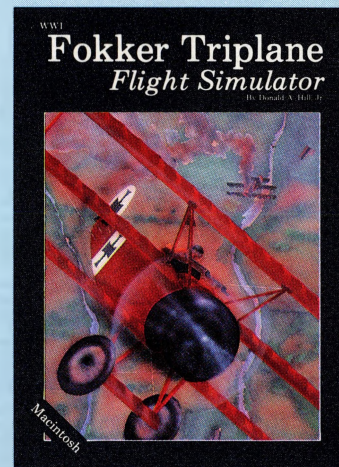
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"Mapping," or "patterning," as a creative method, offers several advantages over traditional outlining. Few people can be creative and analytical at the same time, i.e., one new idea logically giving birth to another in sequential fashion. Try being critical of your work sometime while you're brainstorming and you'll discover that the wells of creativity have promptly dried up. Once you get a group of ideas down on paper, however, they can be looked at as a whole, and the links between individual thoughts clearly established.

Calliope is an idea processor which capitalizes on this approach. Each thought is represented visually by a lightbulb icon. New icons appear on screen wherever you double-click, and each lightbulb can be labeled for easy identification. Double clicking on a lightbulb brings up a scrollable text window where thoughts may be expanded or elaborated upon. Toggling back and forth between a selected icon and its text window is as simple as repeatedly hitting the Enter key. Once you get your thoughts on screen, "chaining" the icons with connecting arrows is done by sequentially Shift-clicking. This establishes an orderly progression to your thoughts, and *Calliope* then can print a simple topical outline or, if preferred, one idea per page. Outlines can be previewed on screen, and may be saved to disk as text-only documents for transfer into conventional word processors. Multiple groups, or "clusters," of ideas can be evaluated simultaneously, and *Calliope* will allow you to "unchain" and rearrange your display at any time.

Calliope performs well as a creative tool. Its graphic form lets you capture and record ideas as they occur, and later group them into meaningful relationships. *Calliope* is limited, though, in that you cannot expand your "pattern" beyond the window boundaries. This greatly restricts the number of icons that can be displayed. A scrollable main window and a zoom feature would greatly enhance the usefulness of the program. Also, an icon may have many incoming links, but only one outgoing link. It would be more realistic to allow multiple links in both directions. *Calliope* could show the equivalency of outgoing links by using indented paragraphs or "bullets" when converting to outline form. There are no fancy bells or whistles in *Calliope*. Even such basics as paragraph numbering and variable font sizes are not supported. Nonetheless, despite its Spartan simplicity, *Calliope* can prove valuable to anyone who has a need to organize ideas, but finds it difficult to be creative when using more traditional outlining methods. I use *Calliope* and have been pleased with the results. This article, for example, was prepared entirely in *Calliope* and then transferred into *MacWrite* for final formatting.

GOOD BUYS & OTHER STUFF

by C. J. Weigand

DISKEXPRESS™ v1.01

If you've used a hard disk for any length of time, you've probably accumulated a lot of fragmented files. Fragmentation occurs because the Mac stores data by writing it in chunks to unused blocks of space wherever they can be found. To read those files, the drive head may have to cover a lot of ground to locate all the blocks in a file that are not stored adjacent to one another. This can cause a noticeable slowdown in the speed of retrieving data. *DiskExpress* from ALSoft, Inc. improves hard disk and floppy performance by collecting fragmented file pieces and reassembling them into contiguous blocks for sequential reading by the drive heads.

DiskExpress will examine a volume for damage, verifying that each block is readable. It will compact the Desktop, in the process eliminating old file icons and unused information that may have been retained by the Finder. Not only does *DiskExpress* read fragmented files and rewrite them in contiguous blocks, but it also will reorder files in priority according to their potential for changing size. In other words, applications can be rewritten first, followed by documents and other files, and lastly the Desktop file. This reduces the rate at which future fragmentation is likely to occur. Finally, *DiskExpress* can erase all unused blocks, thus ensuring that previously deleted files are in fact irrevocably gone and not recoverable by unauthorized persons.

DiskExpress is easy to use. No special or technical knowledge is required, and all instructions are included on a single sheet of paper packaged with the disk. I tried to bomb the program, but every thing I did wrong resulted in a message which told me exactly what my mistake was. *DiskExpress* is slow, however. If you have a hard disk jammed full of files, plan on spending some time away from your Mac while *DiskExpress* does its thing. Also, a word of warning . . . check your disk ahead of time for any copy-protected files. *DiskExpress* cannot handle them, and permanent loss of data will occur (I make it a point anyway never to install any copy-

protected programs on my hard disk . . . it only creates problems when backing up and recovering files). *DiskExpress* is a well-designed product which should be packaged with every hard disk sold. I rate it this month's BEST BUY!

MacPERSPECTIVE™ v2.0

MacPerspective is intended for use by architects, draughtsmen, and commercial artists in preparing "wire frame" perspectives of buildings and other objects made up entirely of straight lines (Figure 1). It's a tool which, if used correctly, greatly reduces the time and effort needed to construct such drawings. Rendering artistic perspectives using conventional graphical techniques takes enormous time and patience, and any changes that have to be made after a drawing is completed usually means redoing the drawing completely from scratch. *MacPerspective*, however, allows viewing points to be changed at will to generate new perspectives automatically.

To create a *MacPerspective* drawing, numerical coordinate values for line segment endpoints must be entered into the *MacPerspective* data field via the keyboard. The positioning of subsequent lines occurs in much the same manner, and either absolute or relative coordinates may be specified. Proper use of *MacPerspective* relies on having blueprints available such that length and distance values are known or can be calculated with ease. It's worth noting that two coordinate systems, one primary and one secondary, may be defined in *MacPerspective*. The primary coordinate system provides a fixed frame of reference for a given drawing. The secondary coordinate system, which can be changed at any time, makes it easier to draw irregular objects when various portions lie at odd angles to one another. As points are entered, connecting lines appear on screen already aligned in proper perspective. Just as when building a house, though, you've got to start with a plan. When using *MacPerspective* the plan consists of not only what the structure should look like, but the geometry of each line expressed in real-world coordinates.

MacPerspective has some handy features that help to speed up the drawing process. Line segments may be grouped by clicking on individual lines, or by dragging a selection rectangle. Such groupings are called "objects" and they may be deleted, repositioned incrementally in any direction, or copied and pasted in any orientation to new locations. For example, a single window in a building can be duplicated repeatedly throughout a structure and, what's more, *MacPerspective* will automatically scale each new window properly in perspective wherever it is placed! Since most regular shapes consist of rectangles, *MacPerspective* can close a rectangle for you once you have drawn the first two sides. Another nice touch is that you can click on an existing point and automatically have a line drawn to it from the last active point. *MacPerspective* also lets you zoom in close for detailed work.

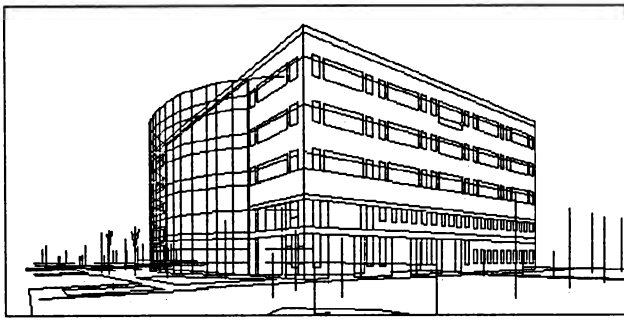


Figure 1. *MacPerspective* can be used for constructing wire-frame, perspective drawings composed entirely of straight lines. Curved lines can be approximated by multiple short straight-line segments. This unretouched *MacPerspective* drawing is a good illustration of what can be accomplished with *MacPerspective*. It is an actual commercial drawing supplied courtesy RTKL Associates, Architects, 400 E. Pratt Street, Baltimore, MD 21202, and Isao Oishi Architect and Illustrators, 2111 Maryland Ave., Baltimore, MD 21218 (301) 727-2077 (perspective by Mary Beth Muscara and Jennifer Sweet).

MacPerspective is ideally suited for the preparation of tracing masters for scaled artistic drawings based on drafting or architectural blueprints. Once *MacPerspective* is used to draw a wire frame perspective, the object can be observed from any position to arrive at an optimal viewing angle. The completed drawing then can either be printed for use as a guide to final artistic layout, or transferred via the Clipboard into other applications, such as *MacPaint*, for additional touchup and stylized reproduction. Drawings may be copied to the Clipboard in any size, and copying may be performed in conjunction with the zoom feature to capture only a selected portion of an image. A drawing may be enlarged up to 100 inches in width and printed on the Imagewriter or LaserWriter (plotters are not directly supported other than via the Clipboard to third-party plotting software). Six principal orthographic projections (top, bottom, back, front, left, and right sides) may be viewed and printed, and up to 3000 points are supported so that the truly patient individual can create extremely detailed images.

There are a couple of things that I would like to see improved. Drawing complex objects such as multi-story buildings can require a tremendous number of calculations to position all the line segments properly. But *MacPerspective*, unfortunately, does not have a customized calculator integrated with its data entry field, a feature which I would like to see added in a future version. It would be helpful to be able to perform a calculation on screen, then click the mouse to have the result automatically entered. Also, there is no hidden line removal capability. The addition of such a feature would greatly simplify the final touchup process, and perhaps even do away with the need to use tracings to create a final artistic rendering.

MacPerspective is a specialized program targeted for a carefully defined vertical market. Whereas the average individual who

doesn't have training in spatial relationships may find it awkward to work with, professional graphic and architectural artists will find *MacPerspective* a useful, laborsaving tool for specific drawing endeavors that require accurate use of perspective. In the right hands, *MacPerspective* can yield exceptional results while saving time and money.

PATTERN BREEDER™ v1.9

From "Down Under" Australia comes a clever little program which automatically generates graphical patterns of varying aesthetic appeal. The principal is much the same as cell replication. The "seeds" are simple geometric shapes which, when "activated," proliferate into a startling variety of symmetrical and asymmetrical patterns, and the effects are often extraordinary if not fascinating.

Pattern Breeder allows pattern generation to be controlled at any stage, even permitting a pattern to be "stepped back" to an earlier point in its development. Pattern growth can be speeded up, slowed down, stopped, and restarted. A breeder editor lets you customize the matrix to vary the direction of growth, and a seed editor lets you create your own seeds within a 32x32 pixel work area that comes fully equipped with wide pens and "mirrors." A breeder library of 60 different breeders and a seed library of 64 seeds are supplied on the disk to help get you started.

I found *Pattern Breeder* to be good at creating unusual, eye-catching patterns for inclusion in drawings. *MacPaint* files can be created directly from within the program, which makes *Pattern Breeder* a convenient tool for artists and illustrators. It's a lot of fun to create your own patterns, and it's certainly stimulating to the imagination. Plant a seed or two and watch what grows, then vary the starting conditions and observe the changes. Sooner or later you'll wind up with something that catches your fancy. In a way, it's kind of like being a gardener... only you don't need to lug around a watering can!

COLORMATE™ v2.2

A few dabs of color can add eye-catching appeal to the most mundane of black and

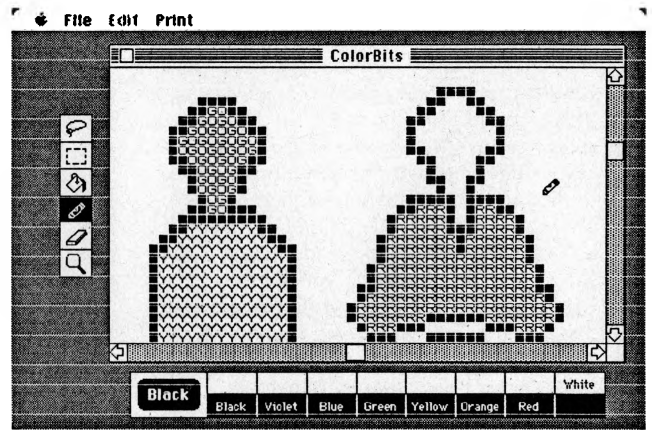


Figure 2. *ColorMate*™ lets you color-edit your *MacPaint* documents on a pixel-by-pixel basis. With such control over detail, stunning effects can be achieved.

white illustrations. Presentation graphics, for instance, can be given fresh visual impact, while homemade greeting cards can be made to rival those found on store shelves. All you need is a tool that will convert your *MacPaint* drawings to multi-colored printouts on your Imagewriter II. For this task, *ColorMate* from SoftStyle does a credible job.

ColorMate opens *MacPaint* and *ColorMate* files directly. Its screen layout even looks a little like *MacPaint* (Figure 2). A tool palette on the left includes a lasso and selection rectangle, paint bucket, crayon, eraser, and magnifying glass, while along the bottom of the window is a paint palette containing seven different color selections. The paint bucket is the primary tool for filling drawing areas with the various colors. It will fill either light or dark areas, and will only color those areas that are displayed within the window (portions of your drawing that lie outside the window must be scrolled to where they can be viewed before they can be filled). Specific areas selected with either the lasso or rectangle can also be filled by the paint bucket. If you make a mistake, a Revert command in the Edit menu will take you back to the last Save, or to the last time you scrolled your document.

The crayon works much like the pencil in *MacPaint*. Even a "ColorBits" mode is provided to give you pixel by pixel coloring (though the crayon is the only tool which works in it). In ColorBits, the first letter of each pixel's color is shown for easy identification ("R" for red, "G" for green, "B" for blue... however, black is still represented by the familiar square pixel). This can be seen clearly in the illustration. Note also that, as in the face of the figure on the left, composite colors can be created by "mixing" the primary colors. This is most easily done by coloring the light bits of a *MacPaint* pattern with one color and the dark bits with another color. When *ColorMate* assigns colors, areas that have been filled become completely black on screen. To determine what color something is, you can click on it with the magnifying glass and the

color will be displayed as a letter, just as in ColorBits. You can also click on the upper bar of the paint palette and the screen will turn white anywhere that color has been used.

As I said, *ColorMate* does a credible job of coloring your *MacPaint* drawings, but it's a bit awkward to work with. There is no Show Page facility, and that means you frequently have to use the scroll bars while filling large areas. If you don't like what you've done, you can't Revert past the last time you scrolled. The Lasso doesn't "shrink" to surround a group of pixels as it does in *MacPaint*. It doesn't blink at you either, so you often can't tell if you've properly enclosed an area (remember, a colored drawing will be completely black on screen). It would be helpful if the paint bucket and other tools worked in the ColorBits mode, but they don't. Working in ColorBits with the crayon can be tedious, yet because the paint bucket is difficult to properly position over small areas in the main display window, you're occasionally left with no alternative. Pasting images into *ColorMate* is a bit tricky, too. You can paste selections into your drawing wherever you like, but any portions that lie outside the window when pasted are lost, and pasted images cannot be dragged. Make an error and you have to Revert to clear the image and try pasting again.

Nonetheless, despite these limitations *ColorMate* gets the job done. If you want a sophisticated (airbrushed?) drawing that is artistic and full of tiny color detail, though, be prepared to spend a lot of time in ColorBits. If just a splash of color for effect is what's needed, then *ColorMate* will do quite nicely. In either case, *ColorMate* offers the ImageWriter II owner color capability without a great deal of expense, and the results are exceptionally nice. SoftStyle also markets *ColorMate Art*™, a useful two-disk collection of over 130 commercially-oriented, color clip art images for use with *ColorMate*.

QUICK PEEKS

FileFinder™ from Nashoba Systems, is a desk accessory which allows you to rename files, copy and store them wherever you want, lock or unlock them, delete them to free up more disk space, and Get Info—all without having to quit your current application. This eliminates those tedious interruptions caused by having to return to the Finder and then restart your application. Easy to use and convenient, I've found it to be an exceptionally handy little program, and I presently have it installed in the System on my hard disk. Version 2.0 of *Filefinder*, which has just been released, is fully HFS compatible.

The Clutch™ is one of the nicest "wallets" for carrying disks that I've seen yet. Attractively styled in padded ripstop nylon, it comes in a variety of colors and holds up to 8 disks. I'd like to see one half that size, though, which holds 4 disks and can be slipped easily into a coat pocket. The Clutch has individually stitched pockets and a fold-over flap which seals with Velcro.

SoftSpot™ is a subscription disk magazine

that comes chock full of interesting and entertaining goodies, and is available in either double-sided or single-sided format. A few of the items can be obtained through user groups or downloaded from a BBS, but most are available nowhere else. The newest in games, animations, utilities, desk accessories, fonts, pictures, sound effects, etc., make up each disk . . . in essence, something for everyone. As of this writing, *SoftSpot* is up to issue No. 4, and it gets better with each new release.

If your graphics collection consists only of *MacPaint*™ and a few public domain clip art disks, you may be delighted to learn that you can now create complex graphs and accurately scaled drawings without having to purchase expensive charting or drawing programs. *Grids*™ is a two-disk set of utility templates designed specifically for use with *MacPaint*. The templates come in a variety of sizes ranging from 3x3 to 21x21. None of them, however, can be duplicated using *MacPaint*'s "eight-bit" pattern editor. Such regular patterns are easy to construct and are left to the user to create as needed. *Grids* concentrates on more difficult-to-create, irregular patterns. Pages of vertical and horizontal lines are also included, as are several kinds of rulers, protractors, scales, and chart templates. All are drawn with careful precision, and properly scaled for use within *MacPaint*. For the inveterate *MacPaint* enthusiast on a tight budget, *Grids* is a tool worth considering.

PRODUCT UPDATES

Champion Swiftware has released version 2.0 of its batch-style checker *Spelling Champion*™, which fixes some incompatibility problems with the Mac Plus and adds a capability to correct *Microsoft Word*™ documents. The *Spelling Champion* dictionary, already one of the largest around, has been further expanded to more than 125,000 words (I find that I am relying on this product more and more because of its superb interface, which allows you to make editing changes to your document while it's being corrected). Cortland Computer's *TopDesk*™ is now up to version 1.4. This latest version takes care of some difficulties that cropped up with the new System 3.2. Silicon Beach Software is offering a free update to your original *Silicon Press* disk. The new version 1.1 corrects some minor problems, including not being able to print in color to an AppleTalk-connected ImageWriter II.

GRIPE OF THE MONTH

My ire is roused by dealers who are reluctant to give you good, friendly service unless you purchased your equipment originally from them. Seems that if you get a better price on some things and buy elsewhere, they take it personally. In fact, many dealers choose to alienate a user from doing any future business with them rather than objectively analyze why they might be losing sales in the first place. Such shortsightedness is more prevalent than you might think, but you

don't have to take it. My advice? When you bring in your Mac for service or upgrading, or when you call to ask about a problem, if the first thing a dealer asks is, "Where did you buy your Mac?" instead of, "What can I do for you?" then take your business across the street, across town, or to anywhere else but there. And don't be intimidated. After all, it's YOUR hard-earned money!

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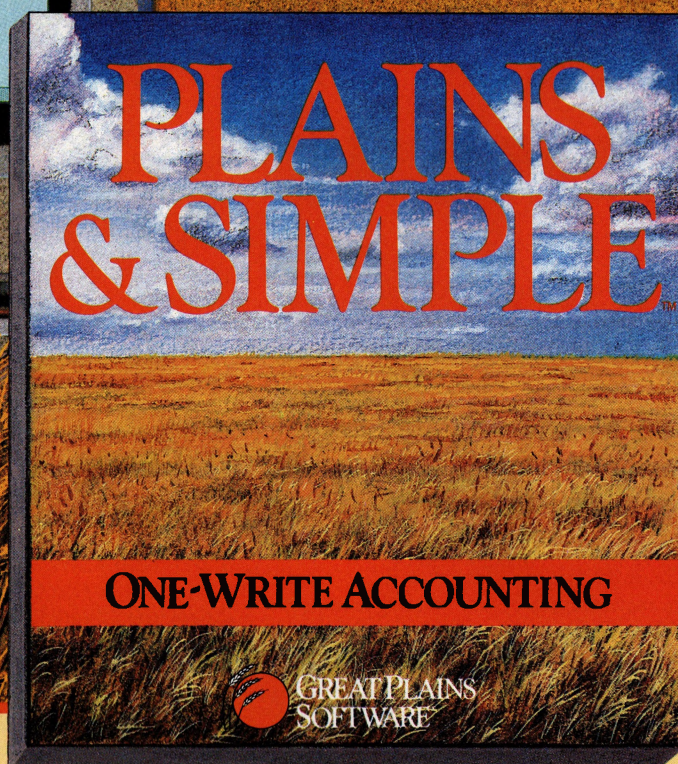
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INFOWORLD PREACHES OLD TESTAMENT ACCORDING TO SAINT IBM OF ARMONK

by Philip C. Russell



The cause of all the hilarity is a review of the first Page Layout Program for MS-DOS (read IBM) computers.

Ta Da! Ta Da!

They gave it a 7.3 rating. *PageMaker* only got a 7.2! I could hardly wait. This ought to be good stuff. WOW!

NOT ALL BAD? WHAT IS THIS?

For starters, the review says the new program, called *ClickArt Personal Publisher* (CPP), is "not all bad." Where I come from, this is called "damning with faint praise."

Next, *InfoWorld* says that CPP on the IBM PC "eats up memory and processing power," and "is clearly intended for light-duty work." They mention that CPP allows four columns. Ahem, the 7.2-rated *PageMaker* lets you have 10.

It supports a whole bunch of dot-matrix printers, but if you want to use the LaserWriter, there is a separate \$150 option. The CPP software is \$185. That means \$335 for a package that lets you print like *PageMaker*. We'll come back to this point later on.

The ruler in CPP on the IBM PC lets you operate in inches, but not in picas and points. Anyone in desktop publishing knows that the world of publishing works in picas and points, not inches. Of course, *PageMaker* lets you operate in inches, picas, and points, or centimeters and millimeters.

SOMETHING WORSE THAN WATCH-WATCHING

Next, *InfoWorld* lets you know that CPP on the IBM PC is slow at updating the screen, on occasion causing you to lose characters. Redrawing a full page of mixed text and graphics takes 50 seconds. Yawn, yawn! Did I once hear *InfoWorld* complaining about "watching

the watch" on the Macintosh? By their own admission, *PageMaker* redraws such a screen in 10 seconds.

In fact, I never had a page take 10 seconds to redraw.

"... disk access is very slow," *InfoWorld* says. "It took almost three minutes to load a 5K page using a dual-floppy system."

A 5K page? Yep! That's the program's limit. If you want to import a larger story, you have to cut it into 5K chunks before you enter CPP on the IBM PC. I routinely pour 30-40K files into *PageMaker*. This story will be poured in with a single "Place" command.

With CPP on the IBM PC you get no automatic page numbering, either.

CAN SHE SCALE A PICTURE, BILLY-BOY?

Ooooooh-kay! Let's place some graphics. Surprise! You can crop, flip, or edit them, but you can't scale them! What a bummer! If your art is 4x5 and the space is 2x2½, you are S.O.L. (Sure Out of Luck).

There are no Help screens, no way of viewing facing pages, and the program occupies four—count 'em—four disks.

Remember, I told you we were going to get back to the relative costs and comparisons with Macintosh Page Layout software.

InfoWorld would have you compare a \$185 *ClickArt Personal Publisher* with \$495 *PageMaker* and \$195 *ReadySetGo* or *MacPublisher*.

Whaddya mean, \$185 CPP? Don't forget that at \$185 it doesn't print out on the LaserWriter. Remember? That little feature costs another \$150.

What this means is that you can have "something like" *ReadySetGo* or *MacPublisher* for only \$140 premium. The CPP Laser-ready combination is \$335 compared with \$195 (discounted to \$105 to \$125) for the two low-end Mac products. Of course, we all know that RSG and MacPub print out on the LaserWriter.

JUST A FEW BUCKS MORE GETS PAGEMAKER

Or, you can find *PageMaker* (\$495 retail) discounted to around \$400. By the way, have you heard the news? *PageMaker* prints out on the LaserWriter, too.

So where does *InfoWorld* get that 7.3 rating for CPP, when they gave *PageMaker* 7.2?

They must have been looking down their Big Blue noses.

I guess I must be missing something, but for the life of me I don't know what it is.

One more point. In recent issues of *InfoWorld* a couple of readers have challenged *InfoWorld* to give the Macintosh and Excel a true productivity test against the IBM PC and 1-2-3. You know, sit a new user down in front of each computer with the same spreadsheet task to perform. Will they do it?

What, and lose all their IBM-oriented advertisers?

What, and admit they were wrong? Forget it!



This is the first in a series of essays submitted by our readers. If you've got something relating to the Mac on your mind, write an essay about it and send it to us. We will pay a princely \$50.00 to readers whose essays are published. Just send us your essay on a disk (MacWrite or MS Word). Label the disk with your name and phone number and send it to: The Macazine Reader Essay Contest, P.O. Box 1936, Athens, TX 75751. If we decide to publish your essay, we'll contact you within a few weeks. Sorry, but submissions cannot be returned.



h, boy, is this going to be fun! Hang in there, folks, this is going to be a leg-slapper!

A few months ago, I got weak in the head and subscribed to a year of *InfoWorld*. I had heard that it was the Bible of the Computer Industry. No one told me that it was only the Old Testament According to Saint IBM.

I thought I wouldn't renew, but the June 23, 1986 issue might change my mind. I haven't had such a good laugh since the PCjr went gurgling down the tubes.



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A Tale of Two Pascals

MACPASCAL VS. TML PASCAL

Why should anyone consider programming on the Macintosh and, more particularly, programming with Pascal? Without descending into the morass of point-by-point comparisons between different programming languages, Pascal was first developed specifically as a language to teach students proper programming techniques. Many of its original features were designed just for the novice with no previous programming experience. Combine this with the ease-of-use of the Macintosh, and you have a potentially unbeatable combination for anyone who has always wanted to delve into the mysteries of programming.

From a Macintosh programming standpoint, more important is Pascal's position as Apple's unofficial language of choice for programming on the Macintosh. This unofficial position can be illustrated with a couple of examples. When Apple first shipped the Macintosh, Lisa Pascal was the *only* high level language available to software developers for writing their Macintosh application programs. Several months passed before third-party developers began marketing other high-level languages (like Forth and C) for programming on the Macintosh.

The other obvious example is *Inside Macintosh*, Apple's official documentation for software developers, which describes how to implement the Macintosh user interface using the several hundred routines provided in the Macintosh Toolbox. All of these procedures and functions are illustrated using Pascal (with occasional side notes for Assembly level programmers).

Despite Apple's unofficial blessing, the number of products offering the Pascal lan-

by Chris Cardiff

guage for the Macintosh are few. This may be because of *Lisa Pascal's* early monopoly, but whatever the reason, there are currently only two other Pascal implementations that have gained much of a following among users. One of these is, naturally, marketed by Apple and is called *MacPascal*. The other is *TML Pascal* from TML Systems (TML stands for Thomas M. Leonard, the man behind this product).

These two products take different approaches to providing the power of Pascal on the Macintosh. Each approach has features that will appeal to different categories of users. *MacPascal's* interactive, interpretive program development environment seems tailored for the novice programmer, while *TML Pascal's* traditional, compiled environment is more clearly suited to the "power" user.

In addition, there is a third Pascal language product worth examining called *Pascal Extender* from Invention Software Corporation. This product is designed to be used in conjunction with either *MacPascal* or *TML Pascal*, and claims to extend their usefulness by providing features that facilitate programming the Macintosh interface. We'll discuss the features of each of these products in turn.

APPLE'S MACPASCAL

I am a firm believer in reading directions and documentation, especially when it comes to programming languages. However, I think

one of the best ad hoc tests of a Macintosh application is to launch it without looking at the documentation and see how far you can get by selecting menu items and using the on-line help features. This provides a subjective basis for judging the ease-of-use of the product for a newcomer and serves as an indication of how well the product's developers understood the Macintosh interface.

So, after backing up the two disks that came with the package, I launched *MacPascal*. When *MacPascal* is launched, it displays the three windows shown in Figure 1. The Program window is for editing your source code, the Text window is for displaying characters, and the Drawing window is for displaying any graphics. Undaunted by having multiple windows filling the screen, I pulled down the File menu and used Open to select one of the numerous sample files that accompany *MacPascal*. The source code immediately appeared in the Program window, replacing the Pascal template provided for writing new programs.

The Run menu seemed the next obvious choice, so I pulled it down, selected the Go item, and watched an attractive bull's-eye paint itself in the Drawing window. Good marks for the first test—without opening the documentation I was able to successfully execute a sample program with only a few mouse clicks.

This first test led to a fascination with the other items in the Run menu. This menu contains a series of items that aid in controlling program execution. With a little experimentation, I was able to easily halt the sample program's execution whenever I desired and examine the appropriate source statements

responsible for the action occurring in the Drawing window. Besides the Go item, there is a Step item for executing a single program statement. As a visual indication of what is occurring, a hand appears in the Program window and points at the statement line being executed. By successive selections of the Step item, you can trace the program's execution line by line. This gives a user who is new to programming an opportunity to actually observe how a program executes a line at a time. A simple extension of the Step item is Step-Step which continually steps through a program without having to be selected each time.

The Run menu also has an item called Stops In. When this item is selected, a region similar to a scroll bar is created on the left side of the Program window. When the cursor is moved into this area it changes to a miniature Stop sign. Clicking anywhere in this region places a Stop sign next to the appropriate line of source code, (see Figure 2). When you later select Go from the Run menu, execution halts automatically wherever you have placed Stop signs. It's another excellent visual tool for allowing the novice to discover how programs work.

In addition to these visual tools, *MacPascal* takes advantage of multiple windows in its programming environment. Besides the Program, Text and Drawing windows, there are two others available that can be opened from the Window menu. The first is the Instant window, which allows a programmer to execute any set of Pascal statements at any time. This means that even in the middle of program execution you can stop, execute some statements in the Instant window, and then continue with the rest of your program's execution. The last window is the Observe window. In this window, a user can enter an expression that will be evaluated whenever execution stops. It allows you to observe how values change during the course of a program.

The Program window has one other unique feature that should be mentioned. Besides the usual editing features found in the Edit and Search menus, *MacPascal* provides automatic formatting for the user as the source code is typed into the Program Window. This assists a new user in learning prop-

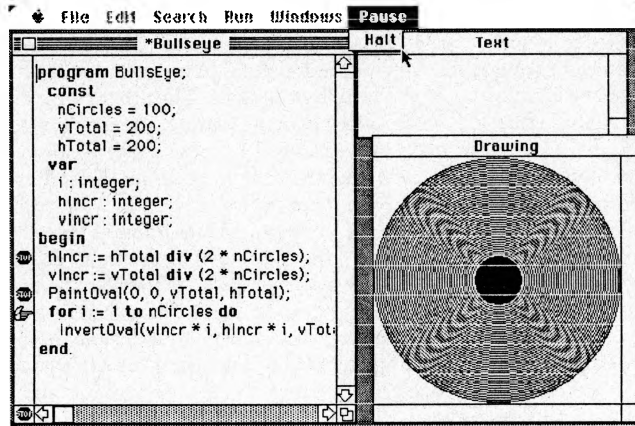


Figure 2. Program Bullseye with Stops inserted. The program has been suspended during execution by selecting Halt from the Pause menu. The Hand points to the statement in the source code that will be executed next by MacPascal.

er formatting, and makes the code easier to understand and debug. The Pascal editor also handles some of the code interpretation by catching the more obvious syntax mistakes as the user enters the code. This provides almost instantaneous feedback—a big advantage for the beginning programmer in learning the syntax of the language—and another excellent implementation of the Macintosh user interface.

All of these tools add up to a great environment for exploring Pascal programming. Apple has succeeded in applying the Macintosh's graphic interface to a programming language in a way that makes sense and provides real value to the user—especially the beginner who is just learning how programming works.

The documentation for *MacPascal* comes in three manuals. The first and smallest contains the description of the programming environment. The second manual contains a description of the Pascal language features and its syntax. The third manual is the appendices for the second manual. The bulk of it consists of Appendices C and D, describing Quickdraw (fundamental Macintosh drawing routines) and SANE (Standard Apple Numerical Environment routines), respectively. These sections are taken largely straight out of *Inside Macintosh*, the developer's guide to programming on the Macintosh. Taken as a whole, the documentation is

adequate for describing how to use the product and the language.

The biggest disappointment I experienced with this product was the implementation of the interface to the Macintosh Toolbox routines. Beyond those routines mentioned in the appendices (Quickdraw, SANE) there are only a handful of others available as straight procedure or function calls. The rest of them are available through *MacPascal's* "unsupported" InLine routines. The only documentation on these routines is found in a file on the disk that can be converted to *MacWrite* format for reading. The implementation provided is awkward and unsuitable for novice programmers. It is also somewhat incongruous, coming from the company responsible for the Macintosh interface.

The other complaint revolves around the lack of technical support. For a product like a programming language, no matter how well the Macintosh interface is implemented, it's essential to have a phone number users can call for technical assistance. It is unfortunate that Apple doesn't follow the lead of most software vendors in providing this service.

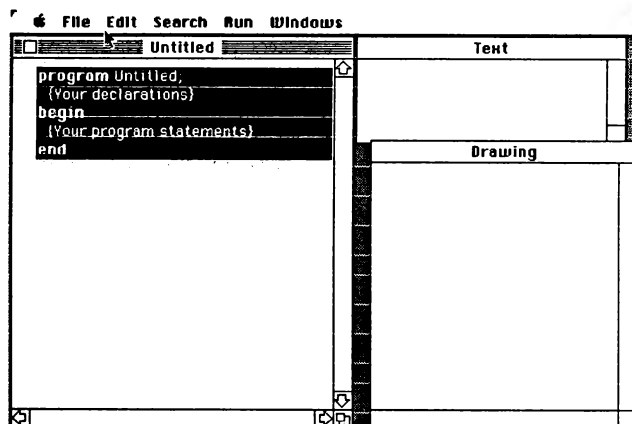
Despite these drawbacks, *MacPascal* is still an excellent choice for the person who desires to learn more about programming. Besides the basic package, *MacPascal* comes equipped with several sample programs which are a great boon to someone new to either Pascal or Macintosh programming.

TML PASCAL

TML Pascal takes a completely different approach to Pascal programming. While *MacPascal's* interactive programming environment is conducive to introducing programming and Pascal to the novice, *TML Pascal* is definitely aimed at the professional level programmer. *TML Pascal* provides a traditional programming environment that parallels Apple's *Macintosh Development System (MDS)* for 68000 assembly language.

This traditional environment is relatively transparent to an experienced programmer, but probably opaque to anyone untutored in

Figure 1. These are the three windows displayed when MacPascal is launched.



its mysteries. *TML Pascal* is provided on two single-sided disks, nearly filling the 400K on each of them. Besides the ubiquitous System files, the first disk contains the four programs necessary to create your own double-clickable application written in *TML Pascal* (see Figure 3).

Without studying the documentation, the novice probably wouldn't know where to start at this point. The experienced programmer would begin with the Editor program (licensed from Apple) and compose his Pascal source code. Switching from the Editor to the Pascal Compiler, the experienced user would compile his or her source statements into relocatable (.REL) files. The next step would be to invoke the Linker, which takes relocatable files as input and links them together as executable code. And finally, if there are any Macintosh Resource files used by the program, the Rmaker program (also licensed from Apple) would be invoked to link these resources to the code.

Why this complexity compared to the simplicity of *MacPascal*'s "type-and-Go?" Part of the answer lies in the difference between compiled and interpreted language implementations. Compiled languages are generally much faster than interpreted but require the extra steps to achieve this speed. How much faster? A program called *Eristothanes Sieve* is a well-known benchmark used in comparing execution times for various language implementations. Running this benchmark with *TML Pascal* took 6.6 seconds versus *MacPascal*'s 19 minutes(!) 2.6 seconds.

There is also more flexibility available in linking different relocatable files together to create an application. Generalized routines can be gathered together in relocatable libraries that can later be used over and over again. Speed and reusability are programming features generally required by the professional.

Another strength of *TML Pascal* is its full support of the Macintosh Toolbox routines. Knowledge and use of these is absolutely essential for anyone creating a marketable application for the Macintosh. *TML Pascal* provides access to these routines through a host of extra files that are easily included in the source code. This is another feature that marks this package as professionally oriented when compared to *MacPascal*'s half-hearted support of the Toolbox routines with its In-Line functions.

Using the full range of Toolbox routines to implement a Macintosh interface raises the degree of programming difficulty of any application. *MacPascal* leaves this complexity (and power) largely unavailable to the programmer by adding another level of complexity to accessing the majority of the routines. *TML Pascal* gives this power to the programmer in a form compatible with *Lisa Pascal* and as illustrated in *Inside Macintosh*.

TML Pascal has other tricks that the experienced programmer will appreciate. There are two additional compiler modes available, for example. If desired, the compiler Options menu can be used to specify that assembly

source code (.ASM) files be generated instead of relocatable files. This allows a programmer the opportunity to optimize the assembler code by hand before passing it on to the Apple's MDS Assembler. The other compiler mode available in the Options menu is syntax checking—handy for quick checks because it doesn't take the time to generate the code.

Beyond these compiler options, *TML Pascal* has the ability to create different types of programs, the principal ones being either Macintosh applications or "Plain Vanilla" applications. For a Macintosh application, the programmer is completely responsible for including, initializing, and using the Macintosh Toolbox. "Plain Vanilla" applications automatically generate code that creates a window for standard input and output, and initializes certain Toolbox calls necessary to run a program. In other words, it provides the bare bones support for running a generic Pascal program on the Macintosh—a real advantage for people just starting out on the Macintosh who are already familiar with Pascal.

A compiler oriented programming environment has a difficult time measuring up to an interpretive environment in terms of immediate feedback and ease-of-use. *TML Pascal* does mitigate this problem slightly with its Transfer menu. The items in this menu allow the user to switch between the various programs like the Editor and Compiler (see Figure 4). Of course, with enough memory you could accomplish the same thing much faster with *Switcher*, but it does help. Also, once the code is linked, the name of your program is added to the Transfer menu to enable immediate launching—a nice touch.

There were a couple of problems I experienced with *TML Pascal* that are worth mentioning. The first is germane only to those of us who haven't gotten around to upgrading our Macintoshes to double-sided disk drives. As I mentioned previously, *TML Pascal* comes on two single-sided disks that are almost full. Files are normally needed from both disks, which does not leave much room for your own files. The first time I tried to compile and link a sample file, I ran out of room on the second disk. Moving files around to make room is always painful, and even your best efforts sometimes lead to a disk swapping scenario. This is a factor to keep in mind if you are still limping along with single-sided drives like I am.

A more serious problem that may or may not be related to the previous one occurred after I had created some room on my disks. When I tried to launch the Linker, either from the Desktop, or from the Transfer menu, it bombed. As with *MacPascal*, I was working from backup copies of the disks, and after several abortive attempts I returned to the original disks. I experienced no problems with the Linker using the originals, so I made two new backup disks. These also performed flawlessly, and since I was unable to reproduce the problem I suspect it may have somehow been related to the first problem.

The documentation for *TML Pascal* comes in a single volume divided into two parts. The first part details the programming environment. There are chapters on each of the parts: Editor, Pascal Compiler, Linker, and Rmaker. The second part of the volume is devoted to a discussion of the Pascal language, in similar fashion to *MacPascal*. The documentation is more complete than *MacPascal* largely because it has to be—there's more to explain here.

Technical support for *TML Pascal* is available from a couple of sources. There is phone support available during designated hours—when I called, Tom Leonard himself answered the phone. There is also support available over CompuServe, probably cheaper for most people than a long distance call to Florida.

PASCAL EXTENDER

Pascal Extender is a set of libraries that contain routines designed to simplify implementing the Macintosh interface with a Pascal program. Programming all the features of the Macintosh interface from scratch can involve almost as much effort as that required for the rest of your program. The *Extender* is designed to simplify this effort while providing a great deal of flexibility. As such, it has the potential to provide a significant productivity increase to programmers by decreasing their development time.

Versions of the *Extender* are available for both *MacPascal* and *TML Pascal*. The version I had was for *MacPascal*. As mentioned previously, one of *MacPascal*'s weakest areas is in the interface it provides to the Macintosh Toolbox routines. The combination of *MacPascal* and *Extender* provides a means of overcoming this major obstacle to *MacPascal* functionality.

Using the *Extender* with *MacPascal* requires running an installation program before the *Extender* routines become available to a *MacPascal* program. There are also a couple of standard calls that must be made in a Pascal program to enable the *Extender* routines to operate. After that, it is simply a matter of making the appropriate *Extender* call as needed.

The real strength of *Extender* is in the power and simplicity of its routines. The *HandleEvent* routine best illustrates these features. This single routine can be responsible for performing what would normally be multiple Toolbox functions. Menu selection, window dragging and resizing, scrolling, and many other functions are all handled automatically by *HandleEvent* once it has been invoked.

This power is coupled with the flexibility for programmers to replace the *Extender* routines with either their own or the original Toolbox routines. This allows a programmer to implement the outlines of the Macintosh interface quickly, and then customize it to whatever extent is needed.

The idea behind the *Extender* is excel-

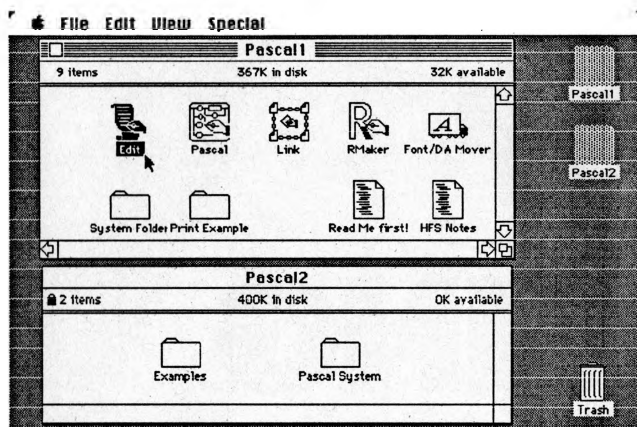


Figure 3. TML Pascal files as they appear on the desktop. Each of the folders on the Pascal2 disk contain a couple of dozen files.

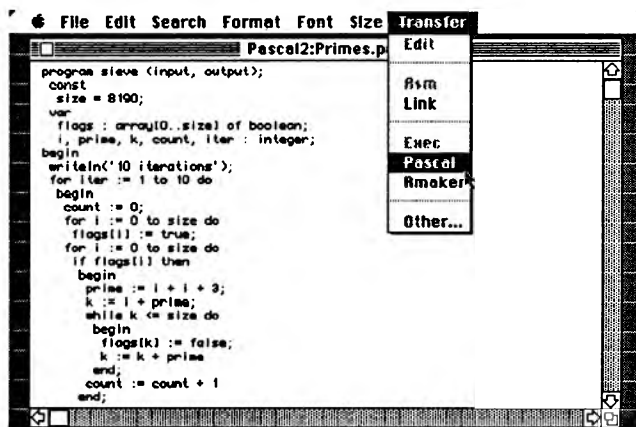


Figure 4. An example of using the Transfer menu to move from the Editor to the TML Pascal Compiler. The Editor window contains a partial listing of the Eratosthenes Sieve program.

lent—it takes *TMl Pascal's* "Plain Vanilla" option several steps further. Unfortunately, the implementation doesn't deserve the same praise. I found several problems with this product as I tested it. The first occurred while I was running one of the demo programs included with the *Extender*. I had placed some Stops in the code, and while I was Stopping and Going, the program bombed. Of course, I don't know whether *MacPascal* or *Extender* was responsible, but since I had no trouble

with *MacPascal* Stops before I installed the *Extender* . . .

There were also several other problems of varying degrees. When re-sizing windows there was an annoying image flicker when the window was re-drawn. Several problems with scrolling appeared in the sample programs; these were apparently based on a problem with the routine that calculates the number of lines of text for scrolling. One of the sample programs (*Pico-edit Plus*) would not run be-

cause of a syntax error—a pretty obvious problem since *MacPascal* highlights most syntax problems automatically as soon as they are typed. There were also numerous typos and errata in the documentation—minor problems perhaps, but to me indicative of a more fundamental problem of low quality.

According to Invention Software, most of these problems do not exist in the *TMl Pascal* version. Also, a new version of the *Extender* should be available soon, with increased reliability and functionality.

RECOMMENDATIONS

Both of the Pascal implementations have features that make them attractive products. *MacPascal* has an excellent program development environment that makes it both easy and fun to use for the novice or the expert Pascal programmer. I would highly recommend it for anyone desiring to learn about Pascal programming, Macintosh programming, or just programming in general. Apple has accomplished the difficult task of combining the Macintosh interface with a programming language in the manner that most people expect from a Macintosh application.

TMl Pascal provides the power, features, and traditional programming environment that will appeal to those looking for a "power" language. *TMl Systems* has done a good job with their product. Although lacking the ease-of-use and Macintosh interface features of *MacPascal*, *TMl Pascal* has a variety of features that make it an attractive option for the professional programmer.

Pascal Extender is a product where the phrase *Caveat Emptor* applies. The current version of it has several serious problems. However, there may be some justification for *MacPascal* owners to acquire it because of the mediocre Toolbox interface provided by the InLine functions. *TMl Pascal* owners are probably better off waiting for a future, more reliable version of this product to be released.

MacPascal

Apple Computer, Inc.
(408) 973-3317
\$129.95

TMl Pascal

TMl Systems
(305) 242-1873
\$99.95

Pascal Extender

Invention Software Corp.
(313) 996-8108
\$69.95

Chris Cardiff is a Software Analyst for Ashton-Tate. He is a frequent contributor to *MACazine*.

Due to space limitations, the extensive figures and charts accompanying this article are contained in this month's *Cauzin Softstrip*. Take it to your local dealer or user group and have it scanned. Or send us a stamped, self-addressed envelope and we'll send it to you. We apologize for this inconvenience.

4

LEADING STAT PACKAGES

"There are lies, damned lies, and statistics."
Attributed to Benjamin Disraeli, British statesman.

While many people might agree with Disraeli's assessment of the statistician's craft, the role of statistics in our lives cannot be underestimated. Everything from the Environmental Protection Agency's miles per gallon figure for automobiles, to the percentage of Superbowl football victories by a team from west of the Mississippi, are statistics calculated to provide some meaningful digest of information.

One generation ago, statistical tabulations were conducted using mechanical desk calculators, such as the Frieden or Monroe models, and the results were garnered only after a laborious series of manual calculations. One decade ago, statistical computation was accomplished via some large, generally remote, mainframe computer with a normal delay of one day to allow for the overnight processing of the large computations required. One hour ago, I used a "Fat Mac" and the programs reviewed below to calculate regression equations that in previous eras would have taken days or hours to compute.

There are currently several statistics programs available for the Macintosh computer, ranging from simple curve plotters to the most sophisticated mainframe-like package. This article will review four major statistical analysis packages available for the Macintosh and will provide guidelines to be used in selecting this type of software for use.

To begin, who needs statistics? If your requirements for data analysis include only graphic presentation of data without further analysis, a package such as *Microsoft Chart*, or

by Terry A. Ward

Excel, or *Lotus's Jazz* will handle your data analysis needs nicely. As noted in Chart 3, the graphics facilities of many of these packages is limited and of relatively low resolution.

If, however, you desire further levels of sophistication in your data analysis beyond simple presentation graphics, one of the packages reviewed here might be more suitable to your needs.

The following statistics packages available for the Macintosh will be reviewed:

StatView 512 +
BrainPower, Inc.
24009 Ventura Blvd. Suite 250
Calabasas, CA 91302
(818) 884-6911

NWA-Statpak
Northwest Analytical, Inc.
520 NW Davis
Portland, OR 97209
(503) 224-7727

NCSS
Jerry Hintze
865 East 400 North
Kaysville, UT 84037
(801) 546-0445

STAT80
STATWARE
P. O. Box 510881
Salt Lake City, UT 84151
(801) 521-9309

The review will be divided into several sections, beginning with an overview of each of the packages. The packages are discussed in order of increasing statistical power. After this specific discussion of each package, a few final comments will be made concerning numerical accuracy, and recommendations for choosing a statistical package. The review will conclude with a series of charts summarizing their capabilities in the following areas:

- 1.) General Information
- 2.) Data Handling
- 3.) Charts/Plots
- 4.) Data Transformations
- 5.) Crosstabulation Statistics
- 6.) Nonparametric Statistics
- 7.) Correlation/Regression
- 8.) Analysis of Variance
- 9.) Advanced Statistics
- 10.) Numerical Accuracy

Not mentioned in the charts, but included in all the software packages, are the procedures for calculating basic descriptive statistics (e.g. mean, variance, median, etc.).

STATVIEW (BRAINPOWER)

StatView 512 + is the professional graphic and statistics program from Brainpower. Its predecessor product, *StatView*, has been previously reviewed briefly in *The MACazine* (August, 1985; pp. 28-29). Both programs are interactive statistics programs for the Macintosh that operate on a spreadsheet-like model for data entry and analysis. Only the advanced product (*StatView 512 +*) will be reviewed here, as it is of most interest to professional statisticians. Of the packages discussed

in this article, *StatView 512+* makes the most use of the Macintosh features of overlapping windows, pull-down menus, and the mouse. In fact, unlike the other statistical software packages reviewed here, *StatView 512+* is available only for the Macintosh. All calculations in *StatView* are done with the Macintosh's 80-bit precision SANE package, which uses the IEEE floating-point standard.

A comprehensive manual is included with the *StatView 512+* package. It includes both tutorials for beginning statisticians, as well as formulas used in the various procedures for the truly curious. In terms of general information, *StatView 512+* is an excellent statistical analysis package for virtually any size data set. It is also an amazingly fast system that provides excellent graphics display of data. With only a few exceptions, *StatView 512+* provides all the features a statistician might desire. As in the other packages mentioned here, note that *StatView* can accept external ASCII data (from a database or text editor, for example).

A particularly useful feature of the *StatView 512+* is the "quick assignment" option for specifying variables to use in an analysis. Figure 1 shows a screen display of this handy feature.

Like any professional statistics package, *StatView 512+* provides for missing data values, allows the user to specify variable and value labels, and permits all of this to be done using the convenient Macintosh interface (pull-down menus, control buttons, etc.).

In conclusion, *StatView 512+* is a classic program for statistical analysis on the Macintosh. It is certainly the easiest statistical package to use, while at the same time providing virtually all the features that might be desired in such a software product. The chart in Chart 11 details the time required to compute various statistical results using *StatView 512+*. As can be seen, the figures are quite respectable.

In addition, I commend *StatView 512+* for succeeding in that elusive task of giving users a "feel for their data." In my statistical consulting work at the University, I have come to the conclusion that users may be able to produce multi-page reports of statistical results without any real grasp of what their data means or represents. *StatView 512+* provides an easy "window" into one's data, and thus is an excellent tool for coming to grips with just what the data means. Its interactive nature, visual orientation, and Mac-like interface make the task of analyzing data that much simpler.

Figure 2 contains a sample output screen of a multiple regression obtained with *StatView 512+*. Finally, Figure 3 shows a sample of the graphics capabilities present in *StatView 512+*. In Figure 3, regression confidence bands are overlaid on a plot of the variables present in a simple regression equation.

With a suggested list price of \$349.95, *StatView 512+* can be recommended without hesitation to anyone needing advanced statistical analysis capabilities. The smaller (and less useful) *StatView* is available for

\$99.95. This smaller product is perhaps useful to the occasional user of statistics, or the student who does not need the more sophisticated capabilities of the *StatView 512+* product.

The ideal statistical system would comprise the following: A Macintosh Plus with the Apple HD20 hard drive running *StatView 512+*. This could be complemented with *Microsoft Chart* and *MacSpin* from D2 Software for a complete data analysis workstation.

NWA-STATPAK (NORTHWEST ANALYTICAL, INC.)

NWA-Statpak is available for use on a wide range of computer systems, including most microcomputers. Specifically, it is available for operation under the following operating systems: Macintosh, CP/M-80, CP/M-86, MS-DOS, PC-DOS, CTOS (Convergent Technologies), and BTOS (Burroughs). It accomplishes this Herculean task by being written in *Microsoft BASIC* and requiring the *Microsoft BASIC* interpreter for its use. While this adds to the cost of the statistical system, it also provides for the creation of custom extensions to the statistical analyses available. Because of its interpreted nature, *NWA-StatPak* is slower than either *StatView 512+* or *STAT80*.

If you are contemplating *NWA-StatPak* for its extensibility, I would also recommend the purchase of the CLR Libraries for *Microsoft BASIC*. These BASIC libraries (*ToolLib* and *MathStatLib*) provide enhanced access to the Macintosh Toolbox. In addition, they provide routines for sorting, matrix operations, and some commonly used statistical calculations. They are available from:

CLR Libraries
Clear Lake Research
5353 Dora St. #7
Houston, TX 77005
(713) 525-4111

NWA-StatPak operates by means of a custom MiniFinder that shuttles the user between the various programs desired. The source code for the programs is supplied and, in use, one can build a custom disk with only the desired programs resident. For example, a person might create several diskettes with one devoted to regression analysis, and another with the nonparametric statistics of interest resident on disk.

Two utility programs have been provided that help manage the process of program management. *SP* is the *NWA-StatPak Entry Program*, which is the "home base," so to speak, for *NWA-StatPak* use. *SP* initializes the data file default system and report date, and enables communications between program modules. It also provides many file manipulation functions such as Copy, Rename, Delete, and List.

A second program, *REDIT* (not to be confused with the *Resource Editor* of Apple, Inc.), is a Row-wise File Editor that provides handy access to data files for editing and correction

of erroneous data entries.

Transfer between these two utility programs and the desired statistical module of interest is easy and straightforward.

Data input from foreign files (DIF, SYLK) is supported with this package. In general, *NWA-StatPak* can handle any data that it might be given. The data handling and transformation characteristics are improved over that of *StatView*, although there are some deficiencies as noted in Charts 2 and 4. *NWA-StatPak* includes some time-series functions that are useful for de-seasonalizing data, as well as a generic function generator module for evaluating complex mathematical functions created by the user.

In terms of statistical operations, *NWA-StatPak* supplies the most commonly used procedures with deficiencies only in the areas of crosstabulation statistics and advanced multivariate analyses. Also, like *StatView*, *NWA-StatPak* has difficulty with unbalanced ANOVA designs. In addition, *NWA-StatPak* does not allow for the creation of value labels (e.g. the values of 1 = male and 2 = female for the value labels of a hypothetical gender variable).

Furthermore, some programs (e.g. the ordinary t-test for unpaired samples) allow output only to the screen and not the printer. Macintosh users can, of course, send a screen dump to the printer, but a more direct approach would be desirable.

In conclusion, *NWA-StatPak* provides a fairly complete and extensible (all *Microsoft BASIC* source code is provided) statistical analysis package. This extensibility, as well as the availability of *NWA-StatPak* for a wide variety of machines, make it a useful statistics analysis product. The praise for the product is tempered somewhat by the relatively high cost (suggested list \$395), combined with the requirement of purchasing *Microsoft BASIC* (suggested list \$150).

NCSS (NUMBER CRUNCHER STATISTICAL SYSTEMS)

The *Number Cruncher Statistical System* takes its name from a dialogue box which appears in the course of lengthy analyses and informs you with a counter that "Number Crunching" is taking place. This light touch is complemented by a comprehensive and extensive set of statistical procedures.

Like *NWA-StatPak*, *NCSS* is written in BASIC. *NCSS*, however includes the *Microsoft BASIC* runtime program so that no additional purchase of software is required. This is counterbalanced by a lack of extensibility afforded the user. The BASIC nature of *NCSS* is also evident in its performance. Of the products reviewed here, it is the slowest (although still adequately fast for most users).

As can be seen from the tables, *NCSS* provides an adequate (though by no means complete) set of statistical procedures. It includes all the basic statistical procedures while omitting the less commonly needed stepwise regression and advanced multivariate procedures available only in *STAT80*. Surprisingly,

though, NCSS includes principal components analysis in its repertoire of regression analyses.

In operation, NCSS is completely Mac-like. Variables for multiple regression, for example, are chosen from a pull-down menu. After selecting the dependent variable, this option is dimmed in Mac-like fashion as the independent variables are selected from the menu.

External ASCII files of data may be imported into NCSS, which then creates a "database" of variables and labels (both variable name and variable value) for its use. The availability of value labels is quite useful, and a welcome addition to this quite inexpensive (\$79.00) product.

The documentation for NCSS is a spiral bound manual (approximately 200 pages) which includes reference and examples for all the desired statistical procedures. The tutorial sections of the manual make extensive use of a sample data set supplied with the software.

In an appendix to the manual, NCSS notes that future plans include a compiled version, analysis of covariance, time series analysis, cluster analysis and high resolution data analysis graphics.

Even without these promised enhancements, NCSS remains the best buy for a low-end statistical software analysis product.

STAT80 (STATWARE)

Ninety-thousand (that's right, 90,000) lines of FORTRAN source code running on a

Macintosh! STAT80, from Statware, provides the most features of any packages reviewed here. As noted in the exclamatory opening sentence, STAT80 is huge. Specifically, STAT80 has been used on mainframe computers of many types for several years, and has recently been ported to the Macintosh environment.

STAT80 can do virtually everything a statistical analyst might desire. The addition of the Professional options, which include factor analysis, canonical correlations, cluster analysis and matrix manipulations, makes the package a formidable contender with any mainframe-based package. In fact, the cluster analysis, canonical correlation, and matrix manipulation operations are the only elements of STAT80 that are missing from StatView 512+, the only other professional statistics package available for the Macintosh.

In operation, STAT80 responds as quickly as any time sharing statistical software service. Like StatView 512+, STAT80 utilizes a memory-resident workspace. This, combined with the relatively large size of program segments, limits the workspace to approximately 54K. This is sufficient to hold 10,000 to 12,000 data points with enough room for labeling (both variables and values), creating new variables, and performing data manipulations. STAT80 is supplied with versions for the Mac Plus, which increase the data capacity to 100,000 data points.

Matching the size of the product itself, the documentation for STAT80 is a massive loose-leaf notebook (34 chapters) and bound

tutorial manual (approximately 200 pages).

In addition to the extensive documentation provided with the package, Statware provides training sessions (at a most reasonable fee) at their Utah facility for the mainframe version of the package. The personnel at Statware have been uniformly cooperative and helpful in all my dealings with the company.

In operation, STAT80 combines both mainframe-like operation and Macintosh menu and dialogue box operations. The general operating environment looks much like a TTY communicating via command lines to a statistical processor.

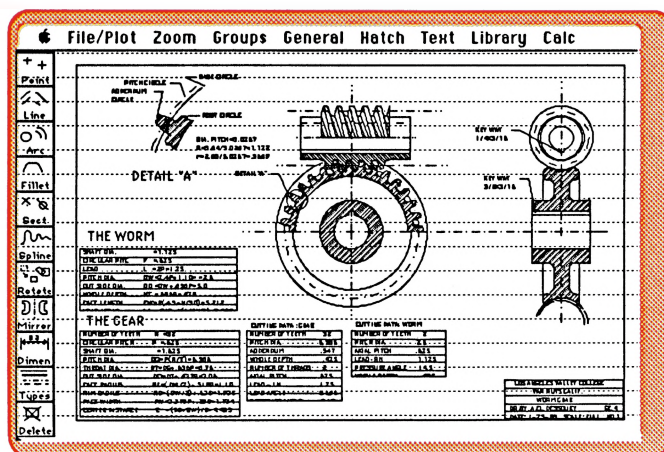
The main menu bar operates like an on-line quick reference card for the myriad commands available in STAT80. The standard version includes 115 commands. Many of these include multiple option and parameter subfields. The computational and transformation command LET, for example, includes 52 such options. STAT80's use of a command-by-example mode of operation makes mastering the product relatively painless.

It should be noted that STAT80 appears to the user to be a mainframe computer with a TTY-orientation. This is quite different from the orientation provided by STAT80 which is totally Mac-like.

A quick look at the charts included with this review will reveal that, in terms of statistical power, STAT80 stands alongside StatView 512+ as one of two products of choice. Like StatView 512+, this power is obtained at a very reasonable price (list \$249.00).

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To give just one indication of the power of STAT80, I could cite the regression example from the section below on accuracy. NCSS, StatView, and NWA-StatPak provided approximately one page of output. STAT80, on the other hand, provided five pages of statistical output complete with diagnostic warning messages concerning multicollinearity in the data!

STAT80 provides a perfect case study of the tradeoff between ease of use and power. In exchange for a more complicated manner of operation (because of its TTY-orientation), it provides the most capabilities of any of the other packages reviewed here.

The availability of an EXEC command, which allows execution of stored statistical commands, makes the task of complex analyses and transformation much simpler. A user familiar with any of the mainframe statistical packages (SPSS-X, MINITAB, SAS, BMDP, SHAZAM, etc.) will feel right at home with STAT80. My major complaints, in fact, revolve around omissions from our Harris mainframe version. Of course, this Harris mainframe costs approximately one-half million dollars. Alas, the Macintosh still remains a micro, albeit a most powerful statistical processor with STAT80.

The time required to accomplish various statistical tasks using STAT80 is outlined *vis-a-vis* StatView 512+ in Chart 11. As can be seen, STAT80 slightly outperforms StatView 512+. In either case though, the times are quite acceptable.

Our review of the various packages above has shown the advantages and disadvantages of the respective software products. Now we are left with just one more issue to discuss; namely, do they produce accurate results? Without an affirmative response here, there is little point in purchasing the product.

To assess the accuracy of the respective products, we used the Longley data ["An Appraisal of Least Squares Programs for the Electronic Computer from the Point of View of the User." *American Statistical Association Journal* (September, 1967): 819-841.] as modified by Chambers [*Computational Methods for Data Analysis*. (New York: John Wiley and Sons, 1977)].

This is a well-known set of data used for testing the numerical accuracy of statistical computations, and is composed of a set of highly multicollinear econometric data points for the years 1947 to 1962. Basically, six independent variables (Gross National Product Deflation Factor, Gross National Product, Unemployment, Size of Armed Forces, Noninstitutional Population 14 Years of Age and Over, and Year) are used to predict the dependent variable Employment. The difficulty arises with the intercorrelations among the independent variables. Many regression packages will have difficulty in inverting the required matrices in the process of solving the regression equations. Chambers uses this data set in a discussion of algorithmic techniques for data analysis.

As can be seen from Chart 10, all the

packages reviewed handle this difficult data set adequately. Only STAT80 warned the user of problems with the data. This most helpful feature highlights one of the strengths of this package. Not knowing that the data was malformed may lead to spurious results. STAT80 warns of these conditions and requires that the parameter for regression tolerance be lowered to allow the inversion of the ill-formed matrix that arises in cases such as these.

Now to the bottom line, so to speak. Each of the four statistics packages reviewed here has its strengths and weaknesses; each provides value for a specific market niche.

For ease of use with an excellent array of statistical options, StatView 512+ is superior. For extensibility at the price of expense, NWA-StatPak is the product of choice. For value and limited capabilities, NCSS provides the needed product. Finally, for telling the "damned lies" from the "statistics" at a bargain price, investigate NCSS.

If your requirements include the few capabilities not provided by StatView 512+ (e.g. cluster analysis or the general linear model), STAT80 from Statware is recommended.

Finally, for sheer elegance of implementation of a true, professional-level product for statistical analysis, StatView 512+ from Brainpower stands alone. If you are planning to do any professional statistical analysis (excepting the few options available only in STAT80), StatView 512+ is to be recommended.

Terry A. Ward is a Programmer/Analyst in the Academic Computing Services Department at the University of Northern Iowa. His primary responsibilities include statistical consulting and programming as well as user training and technical documentation. A resident of Cedar Falls, Iowa, Mr. Ward has published articles in *Byte*, *Microcomputing*, *InfoWorld*, *Dr. Dobbs' Journal*, *Computer Language*, *Personal Computing*, *Macworld*, *MacUser*, and *The MACazine* magazines. He is the author of three programming books from Scott, Foresman and Co.—*Applied Programming Techniques in C* (1985), *Programming C on the Macintosh* (1986) and *Advanced Programming Techniques in Modula-2* (1986). He may be reached via CompuServe 76317,663.

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RESOURCES FOR EXCEL Part II

[This is the second of a two-part series on Excel Resources begun in the October issue.]

Making Your Macintosh Excel! Bill O'Brien Scott, Foresman and Company 1900 East Lake Avenue Glenview, IL 60025 \$19.95

This is a good general-purpose *Excel* book. Not as flashy as some that really get into macros and heavy-duty business applications, it's still a good introductory book and you'll appreciate the light, easy writing style. You'll find lots of little hints and tips buried in the text. They're not presented in little boxes and highlighted with icons like some of the other *Excel* books, but they're there nonetheless.

Compared to other *Excel* books, there aren't as many illustrations and screen dumps, and the ones there are seem fuzzy and crude. The writing style makes up for a lot of that, though, and certain things, like explaining the concept of spreadsheet programs themselves and printing from *Excel* are better explained here than elsewhere.

If you want to learn *Excel* in a low-pressure, easy-to-digest fashion, this book may be the one for you.

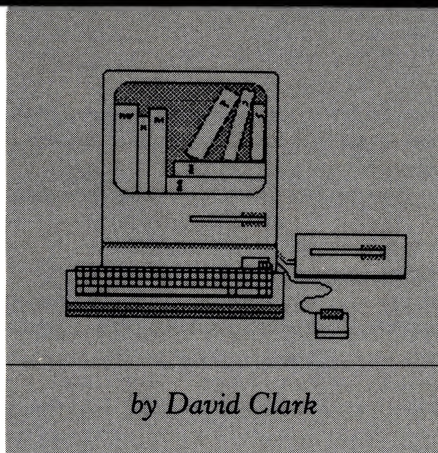
Mastering Excel Carl Townsend Sybex Inc. 2344 6th Street Berkeley, CA 94710 \$22.95

This is one of the first books published on *Excel*, and in some ways it shows. The information seems a little sketchy in spots, and a little short on good examples. A two-part structure is used; the first part is a tutorial presentation, the second part is designed for advanced users. All of *Excel*'s features are covered, but the coverage isn't particularly well organized.

An exception to that is a nice graphic design touch which is used whenever you are asked to select an option from the Macintosh pull-down menus. A picture of the menu is displayed showing the menu heading and the desired option highlighted. This approach clarifies *Excel*'s sometimes confusing multi-level menus, especially in the Chart mode.

There is a good glossary, but it's separate from the worksheet command and chart command appendices, which means you're often flipping back and forth to make sense of something you don't understand. The same is true with the index. There are three: one for examples, one for commands and one for topics. Most of the other *Excel* books have incorporated these by using different typographical styles for distinction.

Mastering Excel provides a general tutorial and some advanced techniques, but it's not



recommended as highly as the other general *Excel* books.

Microsoft Excel with Macros Douglas Hergert Microsoft Press 10700 Northrup Way Box 97200 Bellevue, WA 98009 \$21.95

This is probably the best macro book of the present batch. Hergert presents a style of macro programming that is extremely efficient (one which obviously can be used with any macros you create or get out of another book). What makes the style superior to other methods presented is the use of variable names and the technique of using *Excel*'s "Create Name" function to do it. Make no mistake, this is definitely a programming approach to macros. However, you'll have to accept that fact if you want to master *Excel*'s macro language. And time spent learning the simple techniques and procedures presented here will give you that mastery. This book has three sections. The first covers the concepts of macros, using the recorder and the difference between command and function macros. Section Two is where it happens. . . Simple to difficult examples of the techniques of macro programming. Variables and Data values. Designing Interactive programs. Branching, loops and arrays. You become familiar with *Excel*'s macro language, and its functions and commands. The final section is on creating menu-driven applications. Besides demonstrating *Excel*'s ability to have one macro routine call up (use) another routine, several other sophisticated programming techniques are demonstrated as well. The concept of modular programming, error trapping, using global variables and array formulas to perform efficient data manipulations are all introduced and clearly demonstrated. Almost all the previous techniques commands, and functions are reviewed here.

This is the macro book for those who want the fullest understanding of *Excel*'s macro language.

(Hergert's book, *Command Performance: Microsoft Excel*, will be available from Microsoft Press in the fall). **Notes. . . For Excel** Layered 85 Merrimac Street, Boston, MA 02114 \$79.00

Notes. . . for Excel is a package of accessories for *Excel*, if you will. Part of the package is literally a desk accessory which, after it's installed, will give you access to a series of electronic notecards to give you help and information about *Excel* and the Macintosh. In addition, it gives you a set of business templates to be used in conjunction with *Excel*, and a set of notecards to help you use and modify the templates. *Notes. . .* comes with two disks and a rather hard-to-understand manual. Fortunately, after the installation as a desk accessory, *Notes. . .* will do a good job of explaining itself. It has a set of "cards" for each of the three *Excel* applications (worksheet, chart and database), plus a set of cards for macros, not to mention information about *Notes. . .* itself.

Notes. . . in its stock form will be very helpful to the first-time user/novice. It is faster and easier to use than the *Excel* Help file. There are several ways to view the notes. Select *Notes. . .* from the Apple menu, and a window will show buttons you can click to move among *Excel*'s different applications, and to the previous note you viewed. There is the usual elevator box and arrow to scroll through the text of the note you've selected. Finally, many of the text words are boldface which means that it is cross-referenced to another note or description. Simply double-click on that word or phrase to go to that reference section. You may also select Find *Notes. . .* from the *Notes. . .* menu and type a search string of up to 19 characters to find a reference to any *Excel* topic. For advanced users, *Notes. . .* will allow you to create your own notes so you can make your own help screens and references. Ultimately, this is the feature that's most useful. *The Business Companion* has 12 templates which range from a cash journal to a depreciation schedule which should be enough for most small businesses to get started. The templates are basic, but they're well documented, and should be easy to modify to your needs. This package is a good value for people who need a full range of business templates and don't have the time to make them themselves.

Running Your Business with Excel

Amanda C. Hixson \$16.95

Preparing Your Business Plan with Excel

William Osgood, William Fletcher and Dennis Curtin \$17.95 Disk available \$39.95

Planning and Budgeting with Excel Jeffrey Alves, William Fletcher and Dennis Curtin \$17.95 Disk available \$39.95

Business Problem-solving with Excel James Molloy, Jr., William Fletcher, Dennis Curtin \$17.95 Disk available \$39.95 All published by Osborne McGraw-Hill 2600 10th Street Berkeley, CA 94710

These four books, all published by Osborne McGraw-Hill, are grouped here because of their distinct business applications and because, in several cases, they have authors in common. The most general of the four is *Running Your Business with Excel*. Like other *Excel* business books, it helps you create a cash disbursements journal, a sales journal, and a profit and loss statement. Before you're done you'll know a lot about linking worksheets, macros and almost all of *Excel's* functions. You'll create an inventory database, an automatic invoice, and an automated payroll journal. The idea is to get you to key in the models and learn enough for you to modify them to your needs. The models and macros in this book are not available on disk.

The other three books in this series are specific more to business problems than to *Excel*. As such they're quite different from any of the other *Excel* books we've looked at. Most of them have several chapters strictly on business, finance and planning (in the case of *Preparing Your Business Plan with Excel*, you don't even hear about *Excel* until Chapter Four). These books will be especially helpful to people just starting a business (and who have or are thinking about getting a computer). They are chock full of sound business advice as well as some *Excel* tips that reflect years of experience in using electronic spreadsheets in business applications. With *Preparing Your Business Plan with Excel*, just follow the outline and you'll have a detailed and comprehensive plan for the development, growth, and success of your business. Take that to the bank.

With *Planning and Budgeting with Excel*, you learn the theories and tips for when and how to construct a cash budget, and when and how to construct pro forma income and balance statements. You'll learn how to chart the information and how to evaluate the charts. Finally, you'll learn how to adapt what you've learned to your business.

Business Problem Solving with Excel starts with a basic tutorial on *Excel* and then moves on to meatier problems like solving credit and accounts receivable problems, solving pricing and gross profit problems, solving breakeven and profit problems, and solving inventory, sales, and marketing problems.

The last three books have companion disks available (from Curtin & London, Inc., P.O. Box 363, Marblehead, MA 01945, \$39.95). These disks contain the worksheets and macros used as examples in the individual books.

If you're going to start a business, or you have and you need some planning or some problem solving, one of these should be a big help.

Teach Yourself Excel American Training International 12638 Beatrice Street Los

Angeles, CA 90066 \$75

This is a nifty but basic tutorial. It consists of two disks and a manual. The manual is skinny, and is designed to be used more to review and remind you of *Excel* commands and basic techniques than to teach. The disks are where things happen. Click on the *ATI* icon (with your *Excel* disk in one drive) and get a tutorial reminiscent of the old *MacPaint* demo disk.

When you start up, you are presented with a screen of icons representing various lessons. There are seven lessons on the first disk (opening, setting up, entering data, arithmetic functions, and modifying spreadsheets are some of the things covered). Disk Two has four lessons (using a scoreboard, macros, charts and printing). When you click on an icon, *Excel* opens up in the appropriate way and the *ATI* program presents you with a MacNotebook-like set of instructions in a small window. As you click through the pages and follow the directions, you'll find it's hard not to learn. Sometimes you're asked to type information in a cell, sometimes you're asked to select a command from the menus. In any case, it's impossible to do something wrong. If you do, you'll get a dialog box which, by repeating the instruction in a different way, suggests where you made your mistake.

Because you can jump to and from any of the lessons, there is no graduated difficulty in the lessons. This means that as you get more proficient at *Excel*, some of the *ATI* instructions will become annoyingly rudimentary. Hanging in through the repetitive basics will eventually provide a good overview of how to work *Excel*, however. If you have trouble translating manual-speak into meaningful spreadsheets, the foolproof *ATI* lessons should help.

The Complete Book of Excel Macros Louis Benjamin, Don Nicholas, and the Consultants of Lighthouse Publishing Services, LTD. Osborne McGraw-Hill 2600 10th Street Berkeley, CA 94710 \$16.95. Disk Available from Lighthouse Publishing, 575 Madison Ave., Suite 1006 New York, NY 10022 \$35

This book takes less of a "programming" approach to macros than most of the other macro books. Neither does it explain every last detail like some. It just presents good, clean, simple examples with enough illustration and description to keep you on track.

Some of the focus of this book is on how to create a "library" of macros which you can use with any of the spreadsheets or charts you work with. You start with fairly simple macros for creating and formatting a worksheet, and work your way through macros which will display various Help screens (to help others understand your worksheets). By the end of the book, if you've keyed in all the examples (and made some of the suggested modifications), you should have a nice library of useful macros. Especially good are the array-manipulating macros. Appendix A is full of good advice for good macro design and for debugging your macros. This book will get you off the ground and keep you going.

Using Excel Mary V. Campbell Que Cor-

poration Box 5057 Indianapolis, IN 46250 \$19.95

Organization and logical presentation of material are this book's strong points. Besides a table of contents with four levels of indentation, each chapter has an easy-to-follow progression from the introduction to the conclusion. You won't get lost. And, if you need to find it later you'll have no trouble doing so.

The chapters on *Excel's* command structure, using the built-in functions, arrays, and graphics are all strong. The examples are business-oriented and "real world." Campbell is a business consultant, and she uses many clear examples which provide quick and meaningful understanding of *Excel's* problem-solving capabilities.

The index is hard to read because it's printed in small type. Since the table of contents is so well done, though, it shouldn't be a problem. Virtually anything you'll need to look up is referenced in the index so get a magnifying glass and be happy that you'll be able to find what you're looking for.

The following is a list of companies which have prepared one or more commercial templates for *Excel*. Thanks to Lewis Levin, *Excel* Product Manager at Microsoft, for help with this list. If you have a template that isn't listed here, please notify Mr. Levin at Microsoft (address below). Prices of templates listed here range from \$25 to over \$250. Write or call the companies below for current prices and information.

Mortgage Switch Calculator AIS Microsystems 1007 Massachusetts Ave. N.E. Washington DC 20002 202-547-9113

Tax Planner '85/'86 Appropos Software, Inc. 64 Hillview Ave Los Altos, CA 94022 415-948-7227

Stru-Plan (structural engineering) Benchmark Software, Inc. 824 Cotswold Road Summerdale NJ 08083

Excel/JaZz Business Templates Computer Concepts 2697 Lavery Court #6 Newberry Park, CA 93020 805-499-0583

EZ Tax-Plan Pro EZ Ware P.O. Box 620 Bala Cynwyd, PA 19004 215-667-4064 Tax Prep '86

Flight Planner Insanely Great Software 130 Redwood Place Scotts Valley, CA 95066 408-438-2276

Tax-EZE L.W. James & Associates 1525 E. County Road 58 Fort Collins, CO 80524 303-486-5296

MacCenter + (shopping ctr. mgmt.) **MacManage +** (single family rental) MacManage 2522 S. Florence Ave Tulsa OK 74114

Microsoft Corporation 10700 Northrup Way Box 97200 Bellevue, WA 98009

Real Data Inc. 78 N. Main St. South Norwalk, CT 06854 203-255-2732 Many Real Estate Templates

Construction Project Management System Softouch Software Inc. P.O. Box 1744 Lake Oswego, OR 97034

California Tax Corporate Tax Planner Real Estate Planner Tax Calc Inc. 4210 W. Vickery Ft. Worth TX 76107 817-738-3122

LET'S TAKE A TRIP DOWN

MACMEMORY LANE

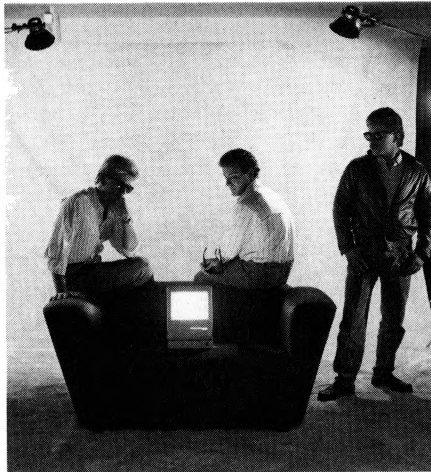
by C. J. Weigand

Out there in Mac Computer Country there exist a number of unsung heroes who have helped to shape new directions for the Mac and take it far beyond its original "as-it-comes-in-the-box" capabilities. These innovative creators and marketers of both hardware and software often are as exciting and interesting as their products. "A Trip Down MacMemory Lane" is the first of MACazine's new personality profiles intended to let you, the end user, catch a behind-the-scenes glimpse of the fast-paced, challenging, and ever-changing world of the new Macintosh entrepreneurs.

Everyone from grade school on is familiar with the equation: Computer Wiz = Computer Nerd. So often has it been stated, that over the years it's become a cliché usually accepted as true without so much as a second thought. But it's a cliché that was never more untrue than in the case of the "MacMemory Bunch," a group of wild and crazy guys that are at once astute businessmen, avid sportsmen, capable engineers, and modern-day risk takers. These young entrepreneurs completely unbalance the equation. Looking like they just stepped off the pages of *GQ*, the MacMemory Bunch totally demolishes the image of the horn-rimmed glasses, book-toting, turtle-necked, keys-dangling-from-the-belt, borrrrrrrring computer wiz. Their company, MacMemory, Inc., produces and markets a family of best-selling hardware enhancements and software designed to increase productivity and let your Mac's memory work for you in ways you might not have thought possible. The story of how MacMemory, Inc. got started, and their subsequent meteoric rise to success, is a tale worth telling.

ONCE UPON A TIME

In 1984 (one of the best recent years for good-quality California wines), two Stanford



graduate students took a class in "Smart Product Design." The students were Carlos Suarez and John Foley, and the class dealt with microcomputer board design. Both Carlos and John owned 128K Macintoshes and used them extensively in their coursework. They became good friends, and when the January 1985 *MacworldExpo* was held in San Francisco, like thousands of other enthusiastic users, they attended the show together to find out what was new. It was there that they saw Apple's 512K memory upgrade. By comparison, their 128K Macintoshes suddenly seemed rather puny.

Once they had envisioned the capabilities offered by a 512K Mac, neither Carlos nor John felt satisfied working on a 128K machine any longer. There was only one problem . . . they didn't have enough money to purchase the new boards. Back then, Apple's upgrade cost roughly \$1,000 dollars! A truly astronomical sum for a graduate student on a limited budget. And what do you suppose these enterprising young graduate students did about it? Moonlight? Mooch off Mom and Dad?

Take out a "low-interest" student loan? The answer is . . . none of the above. They did what any red-blooded, all-American computer wiz would have done . . . pried open their Macintosh cases, studied the insides a bit, then went out and bought some chips. A short time and a little soldering later, they became the proud owners of the first 512K upgrades on campus, at a cost of less than \$200 apiece!

Most of us at that point might have been content to simply show off our Macintoshes a bit and then get back to work. But not these guys. A quick review of the numbers (\$200 versus \$1,000) led to the inescapable conclusion that doing upgrades as a sideline might be an effective way to earn some much-needed extra money. After all, they now had the knowledge *and* the experience! So Carlos and John smiled, shook hands as partners, and in that instant MacMemory, Inc. was born.

EARLY DAYS OF GROWTH

I spent some time interviewing these fellows. John told me that when he and Carlos formed MacMemory, they had less than \$1,000 in cash between them. They invested it all in additional chips. Over the next few weeks they posted flyers around campus and attended user group meetings to announce their upgrade service. As word got around, more and more students began showing up at John's campus apartment with Macintoshes in hand. A short time later Stanford officials unceremoniously booted John out of his apartment for operating a business (bureaucracy proving itself the antithesis of free enterprise). Undeterred, Carlos and John moved their operation into Carlos' condo where they continued to provide upgrades to local users. They ran a few small newspaper ads, and it was then that business started picking up.

By that time Carlos was working at Lock-

heed. John was still in school and in classes a lot, so they decided to install an answering machine. Soon even that wasn't enough to handle all the calls, so they hired the girl who lived downstairs to be their receptionist and answer the phone when they weren't there. John reminisced about spending long hours in the evenings on the phone with potential clients to answer questions. "Even to this day, the lack of understanding about what a memory upgrade can mean in terms of increased productivity," he said, "makes many users hesitant to take the plunge. Once they do, though, they find out how great it is and quickly become evangelists!" Carlos likes to add, "There's generally two kinds of users: those who need to be more productive and know it (including programmers and large database, spreadsheet, music, and graphics users), and those that aren't yet aware of how much time they spend waiting, waiting, waiting . . . on that ever-present wristwatch. More memory means more effective use of RAM disks, *Switcher*™, and *Servant*™. Many applications run faster and perform better, too. The increase in overall productivity," he says, "can be astonishing."

Business kept improving, so much so that Carlos' roommate finally said "Enough!" and moved out (he couldn't put up with the constant interruptions and the ever-ringing telephone). With the outlook so bright, Carlos and John decided to "really go for it." They took out their first major display ad in a national magazine. Soon the UPS truck was pulling up twice a day to deliver and pick up boards. Carlos went waterskiing one afternoon, and returned to the condo, dismayed to find the living room completely taken up by a 15-foot workbench that John had built in his absence (previously they had used the door off the closet propped up on cement blocks). It was a time of change and growth, not to mention heady excitement for these two young entrepreneurs.

Before long, customers were asking for memory upgrades that went beyond 512K. MacMemory hired its first technician to help produce a new 1-1/2MB board called the *MAX*™, which Carlos and John working together had designed. They stayed up late, night after night, perfecting their new product. John said, "We even worried about what color the resistors should be. That's how concerned we were that this product should be the very best that could be offered." That Fall, in August of 1985, they flew to the first Boston MacworldExpo, carrying 100 new *MAX* boards that they'd completed just days earlier.

The MacworldExpo proved to be the turning point for MacMemory. When Carlos and John arrived in Boston at the Bayside Exposition center, they examined their booth area. It came equipped with only a small name sign, standard for such booths. All around them other vendors had large, colorful displays, and lots of equipment set up to attract user attention. All they had was a single Macintosh on which to show their product, and no fancy display signs. It didn't take long, however, for

word to get around. Soon, enthusiastic crowds mobbed their booth 3 and 4 deep trying to see the *MAX* in operation. The response from the show was nothing short of phenomenal, and it catapulted MacMemory overnight to national prominence.

From the very beginning, MacMemory has marketed timely products at affordable prices, and they've continued to prosper in a hotly competitive market by adding new products to meet new customer needs. Furthermore, they've distinguished themselves from their competitors by dedication to service and quality. Customer support is more than just a watchword with them . . . it's a credo that they prosper by. In the early days of MacMemory's growth, for example, the biggest obstacle to sales was logistics. Memory boards back then had to be modified. This meant that a customer had to make do without his Mac while its board was shipped to MacMemory, upgraded, and returned. John tells of a time when, so as not to inconvenience an anxious customer, he removed the board from his own Mac and shipped it because there was a delay in obtaining the necessary chips to install the upgrade. "This happened on more than one occasion," Carlos added, "but we felt that a satisfied customer was our most important achievement." Product quality control, too, has been almost a religion at MacMemory. *Every single board that gets shipped is actually installed and tested in a Mac before it goes out the door!* "We're end users ourselves," they both emphasized, "and we hate it when we buy something that doesn't work. We make sure that this doesn't happen to customers who purchase our products."

There's a commitment to engineering excellence. The boards which come from MacMemory are clean in design and assembly. The *Max2*™, for instance, is a 2MB expansion for the 128K and 512K Mac, and compatible with the new Apple ROM. It's a complete Macintosh replacement motherboard that installs in just seconds. State-of-the-art surface mount technology is used in their *MaxPlus*™, a 2MB modular expansion for the Macintosh Plus. It costs a little extra to produce, but is more reliable in the long run, and it allows the end user to install a new upgrade himself without any modifications to the motherboard. MacMemory adheres to Apple standards—which means their new products are fully compatible with existing software, and are expandable to 4MB with the new 1MB chips.

Quite some time ago I installed the *MaxPlus*™ 2MB memory upgrade in my own Mac Plus. I did it without any difficulty, and the highest compliment I can pay MacMemory is that I've found it to be totally transparent. There is, of course, the welcomed increase in speed when using various software programs, but the only visible indication is the "About The Finder . . ." message, where 2048K instead of 1024K of available memory is indicated.

MacMemory listens to their customers, too. For example, users of MacMemory's

MaxRAM™ software asked if the RAM disk could be made recoverable. MacMemory went to work on the concept, and the result was *MaxSave*™, a plug-in module which allows you to fully recover a RAM disk and all its files in the event of a fatal system error. I installed *MaxSave* and cancelled plans for purchasing an external RAM disk. At \$119 *MaxSave* does everything those expensive external RAM disks do, except provide battery-power backup for unexpected power losses. When I first installed *MaxSave*, I failed to follow the instructions properly and plugged it in backwards. Powering up my machine fried the *MaxSave* board but didn't harm any of my Mac's components. When I called to order another *MaxSave*, I was told to return the damaged one for a *free* exchange. I was also gently admonished to follow the instructions provided more closely. Many companies I've dealt with would have said, "tough luck, fella, send more money." Not only did MacMemory replace my damaged module for free, but they immediately re-engineered the board so that it's now impossible for any future customer to install it backwards as I did! And get this . . . **ALL OF MACMEMORY'S FAMILY OF PRODUCTS NOW COME WITH A FULL TWO-YEAR WARRANTY!**

TODAY AND TOMORROW

Several memory upgrade companies quietly folded when the Mac Plus came out, but MacMemory was prepared, and introduced an expandable 2MB plug-in memory upgrade for the Mac Plus, along with a recoverable RAM disk. Complementary *MaxRAM* and *MaxPrint*™ software comes bundled with each *MaxPlus* memory upgrade, as does *MaxChill*™, an internal piezoelectric fan which is engineered to provide quiet, effective cooling for your Mac. These products enjoy the distinction of being price-performance leaders in the Macintosh market . . . even Apple has purchased units for their own use. With the anticipated release of the open-architecture Mac, MacMemory has plans for numerous new products.

WHERE THEY CAN BE FOUND

MacMemory is located in the heart of Silicon Valley. The MacMemory team presently consists of 30 employees. Roughly five new employees are hired each month, and MacMemory goes out of its way to hire only the best. They're planning to move again soon, this time into a 20,000 square foot building. Almost all of MacMemory's early profits were poured back into their products to meet the demands of continued growth. Anyone who visited the company "offices" in the early days would have seen card tables being used as workbenches. Things have improved a great deal since then.

MacMemory has a strong marketing presence, which means we should be seeing and hearing a lot more of them in the months ahead. Thomas Massey (affectionately refer-

red to as "Mac" Massey), their VP of National Sales, possesses a solid background in sales and is convincing in his presentations. Carlos and John, of course, are usually on the scene, and occasionally Walter J. Haverkort III ("Third," for short) shows up. He's a friend of the company who provides encouragement, moral support, and great party ideas. There are also a lot of other hard-working, talented, dedicated people at MacMemory, striving behind the scenes to fulfill the MacMemory dream. The MacMemory employees are all Mac users. They do circuit board design on the Mac, and they do accounting, communications, and desktop publishing on the Mac. They are, in their own words, "tuned in" to the needs of other Mac users everywhere, and they use their own products everyday in an effort to constantly improve them.

MacMemory has a booth at all the Expos, so drop in and chat awhile. If you're anxious to see their products, give your local dealer a call and ask for a demo. MacMemory has a toll-free number (1-800-862-2636) except California (1-408-773-9922) for orders and product inquiries, and they'll be glad to send you complete information on any or all of their products.

SUMMARY

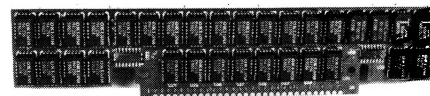
John and Carlos are proof that it's still possible to succeed in this land of opportunity. What's more, they're doing it the old-



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fashioned way . . . by offering quality products at reasonable prices, then backing them up with extended guarantees and full-service customer support. It's a way of doing business that, as a reporter, I greatly admire . . . and as an end user, I greatly appreciate.

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Philip C. Russell

430 SW Crest Circle, Waldport, OR 97394

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A perfect stocking stuffer is the *Mouse Droppings Book of Macintosh Hints* (or, "What Apple Didn't Tell You About Your Macintosh Computer"). It is a collection of useful tips compiled from the fabulous Corvallis MUG newsletter, *Mouse Droppings*. The tips are broken down into categories ranging from Desktop Publishing to Surge Suppressors, and represent state-of-the-art Mac Trivia. There's a huge index in the back for locating your favorite hints. It's a bargain at \$8.95, postpaid.

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(408) 748-8571

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by Max Vizsla

\$14.95 (not a misprint). It features 273 frames of animation and 70K of digitized sound. Hats off to the guys at Primera Software for helping in the battle against high software costs!

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Also reasonably priced are the art disks in the SunShine Graphics Library. For a mere \$12 per disk (\$10 if you buy three or more), each volume in this series is packed with beautiful digitized versions of classic art copied from rare books and magazines. There are over thirty disks divided into categories like "Oriental Cutout Designs," "Art Nouveau Nudes," and "The Age of Knights." And we're talking BIG FULL PAGES—not a collection of little decals, although sections of the drawings are suitable for cutting out and using alone. It's the perfect gift for the *MacPaint* fiend in your life.

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MicroStore

P.O. Box 37

St. Peter, MN 56082

1-800-962-8885

prices vary

Bosses of Macintosh offices needn't settle for giving their employees the standard frozen turkey at Christmas. MicroStore will customize their excellent disk•books with your company logo and name printed on the cover for all the world to see. The disk carriers come in three models and 4 colors. You provide camera-ready art and MicroStore will do the rest. This is also a perfect idea for Mac clubs who want to offer their members customized MUG books. A minimum order is 50 units, and prices range from \$14.95-\$29.95, with a small set-up and per-unit special handling charge. Order them right away or you won't get them in time for Christmas.

LASER LOGO (EVERY COMPANY SHOULD HAVE ONE)

Laser Logo

623 E. Willow Street

Syracuse, NY 13023

\$125 plus \$3 postage & handling

What do you get for the businessman who already has everything, including his own Laserwriter? Why, a LaserLogo, of course! LaserLogo will accurately recreate a company logo as a Postscript file which can then be printed on a LaserWriter or Linotronic 100 or 300. For your money, you will get six screen versions and one printer version, which can be scaled to any size. It takes five days to create, and then it's installed as a downloadable font, which means it can be printed from within any PostScript compatible software, including *PageMaker*, *MacWrite*, etc. Corporations can also convert a corporate typeface into PostScript for about \$5 to \$7.50 per character, depending on the complexity of the font.

LASERSPOOL (REDUCES WAIT TIME FOR LASER PRINTERS)

Micah LaserSpool

Micah, Inc.

2330 Marinship Way

Sausalito, CA 94965

(415) 331-6422

\$149

Another useful product for LaserWriter owners is the Micah LaserSpool, a PostScript print spooler. No longer must individual network users wait to print their documents. The LaserSpool copies the print file for each user to a hard disk, freeing up their computer, and then manages the printing for the entire network. Up to three users on a network may make simultaneous spooling requests. Only one version of the LaserSpool software is required for each LaserWriter in the network.

COMBINATION DUST COVER AND CARRYING CASE

TakeCover

Tacklind Design, Inc.

250 Cowper St.

Palo Alto, CA 94301

(415) 322-2257

\$34.95 plus tax & shipping

Now this sounds weird, but it's really a great idea. TakeCover is a combination dust cover and carrying case for the Macintosh. Seriously! It's made of rip-stop nylon, and covers the Mac, keyboard, disk drive, mouse, and cables, all in one compact unit. A special flap allows you to pick up the Mac by its built-in handle and carry the entire system in one hand, which is great for moving the Mac around the office. Slip the keyboard, disk drive, mouse, and power cable into their respective pockets, and you are ready to go. Naturally, it folds compactly for storage.

Merry Christ-MAC shopping!!



"Now protect your home and make life easier too"

The **X-10[®] POWERHOUSE[™]** Home Control Interface works with your Mac, Mac Plus or Mac XL to control lights and appliances in your home for security and comfort.

Security!

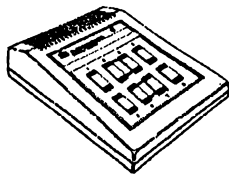
When you're away, it makes your home look and sound lived in by turning lights and appliances on and off automatically. When you come home you don't have to worry about someone lurking near your house, the outside lights will be on to light up your yard, porch and driveway.

Comfort too!

When you're home, it can dim the lights, turn off the TV at night and wake you up to stereo and fresh brewed coffee in the morning, but it's smart enough not to wake you up on weekends. It can even turn on your air conditioner so your home is cool when you get home from work.

It won't tie up your computer

Use your Mac only for programming. When you've finished you can disconnect the Interface from your Mac and keep it plugged into a 120V outlet. It will operate as a stand alone controller with battery back-up and run your home automatically.



CP290 Controls 256 Modules Automatically, 8 manually.

Easy to install

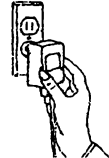
The Interface connects to your modem port and to a standard 120V outlet. After it is programmed, it sends digital signals over your house wiring to special X-10 modules. It can control up to 256 Modules throughout your home.

CP290M - Home Control Interface
complete with software and cable.

Now only
\$79.99*



Plug the lamp or appliance into the Module...



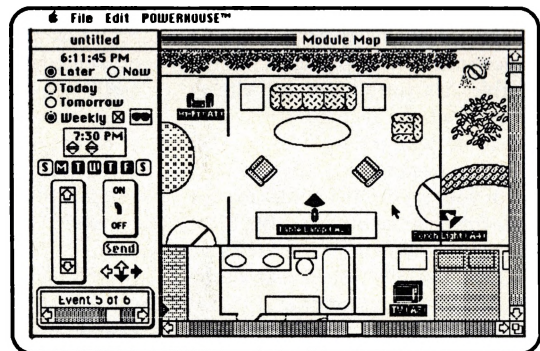
Then plug the Module into a standard electrical outlet.

Control anything you want

There are plug-in Appliance Modules and Lamp Modules. Wall Switch Modules for outside security lights, special 220V Modules for heavy duty air conditioners and water heaters. Plus a thermostat set-back controller to turn your heating or air conditioning down at night and back up in the morning. There is even a Telephone Responder available to let you do all this from your office.

Programming is easy

You paste icons into the Module Map anywhere you want them (up to 256 icons). Then click on the icon to control a light or appliance. Click on the time and day buttons to program up to 128 timed events. You can draw your own background or change any of the ones supplied, to look like your home.



Programmed times are entered by clicking on the various buttons. The Module map can be customized to look like your home.

Lamp Module, Appliance Module and
Wall Switch Module each only

\$17.99*

* Suggested retail price.

call toll free 1-800-526-0027 for the name of your nearest dealer.

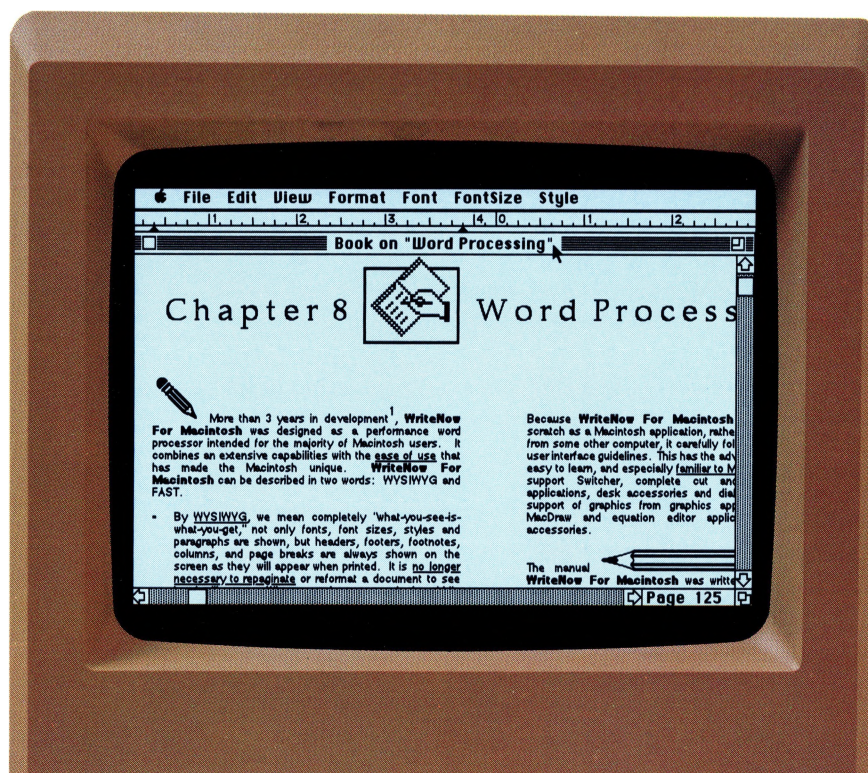
X-10 (USA) Inc., 185A LeGrand Ave., Northvale, NJ 07647

Background Paint documents not supported on 128K Mac. Additional cable required for Mac Plus & Mac XL.

Circle 207 on Reader Service Information card

Performance Word Processing is here...

WriteNow™ For Macintosh.™



Introducing WriteNow™

For Macintosh, the next step in word processing. WriteNow For Macintosh combines the power you would expect from a dedicated word processing system with the ease of operation that you're used to with MacWrite.

□ Performance.

The program is fast. Very fast. *Especially with large documents.* Saving, scrolling, finding and replacing, and printing happen *lightning-fast*. Regardless of document size, repagination is automatic and reformatting is instant.

□ On-Screen Multiple Columns.

You can do true WYSIWYG (What-You-See-Is-What-You-Get) editing in *one, two, three, or four columns* directly on-screen. Page breaks and characters from 4-127 points are displayed on-screen as well.

□ 50,000 Word Spelling Checker.

A fast, on-line 50,000 word spelling checker is included. You can add or delete words and create "personalized" dictionaries. The spelling checker also has a handy "guess" feature that recommends the correct spelling of misspelled words.

□ Headers, Footers, and Footnotes.

Now you can display a unique header and footer for each page. Footnotes can be automatically numbered and edited on-screen as well.

□ Unlimited Open Documents.

Open as many documents as memory allows, making cutting, pasting, or reviewing between windows a breeze.

□ Embedded Graphics.

Graphics images can be part of a sentence, part of a paragraph, or a separate paragraph, and can be proportionally or freely sized.

WriteNow For Macintosh — The New Standard

Word processing on the Macintosh will never be the same. Here's what Steve Jobs, creator of the Macintosh, has to say: *"This is the word processor that we designed and built Macintosh for."* The wait is over. To learn more, contact your local computer dealer today.

Suggested Retail: \$175

Min. Requirement: Runs on any Macintosh. (Macintosh 512K or larger recommended for spell checking.)

T/Maker™

T/Maker Company
1973 Landings Drive,
Mt. View, CA 94043
(415) 962-0195

TYPESETTING EASY TO LEARN SIMPLE TO USE



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Communications
Incorporated

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